AMERICA THROUGH INDIAN EYES

KANWAR SAIN

AMERICA
THROUGH
INDIAN EYES

BY

KANWAR SAIN, I.S.E.; R.B.
M. Am. Soc. C.E.; M. Am. C. Inst.

With a foreword

By

The Hon'ble Khan Bahadur, Lt.-Col.,
SIRDAR SIR SIKANDER HYAT KHAN, K.B.E.
the late Premier of the Punjab.

LAHORE
UTTAR CHAND KAPUR & SONS
1943

MASOOD FAISAL JHANDIR LIBRARY
Acc No: 028011
★ MAILSI ★

TECHNICAL SUPPORT BY
CHUGHTAI
PUBLIC LIBRARY

*Printed by Guran Ditta Kapur at the
Kapur Art Printing Works, Lahore.*

To

Sir Sikander Hyat Khan
the late Premier of the Punjab
whose Government provided the
opportunity for writing this book.



THE HON'BLE SIR SIKANDER HYAT KHAN

Foreword

By

The Hon'ble Sir SIKANDER HYAT KHAN

It is a pleasure to me to write a few words by way of introduction to this account by a Punjabi of what he saw in America and of the impressions he gained in that country. It is a matter for gratification that an officer of Government on an official visit should have employed his spare time to such good advantage in acutely observing the conditions of the people he was visiting and in recording their problems and the way in which they are trying to solve them.

Lahore :
December, 1942.

CONTENTS

ILLUSTRATIONS



Mr. J. L. Savage with Mr. A. N. Khosla and the author.

PERSONAL ACKNOWLEDGMENT

My first debt of gratitude is due to the Punjab Government who were responsible for my being sent to America on deputation. This debt cannot be adequately repaid in words.

Mr. J. L. Savage, the Chief Designing Engineer of the Bureau of Reclamation, who left an indelible impression on my mind, provided the stimulus to undertake this work. And in no small measure has Rai Bahadur Ajudhia Nath Khosla been responsible for this outturn. Being the senior member of the Deputation and having had the benefit of a previous visit to America in 1930, he arranged the programme in a way that it left only very few gaps in the crowded visits to engineering works and studies of a technical character. But in the short intervals picked up for reading the daily paper, and during journeys by train and car his previous intimate knowledge was of great help in unfolding the picture of America in front of my eyes. Most of the points were mutually discussed, sometimes not without a certain amount of heat. These discussions were very illuminating. I can only claim credit, if any is due at all, for taking advantage of my short vacation to pen down the results of such discussions. To both of them is due the personal homage of an admirer.

My thanks are also due to a host of other American friends, whose talk was characterised throughout with a frankness of an unusual order. It was a pleasure to be in their company. It is rare to come across such hospitality and sincerity. I have made a free use of the information gathered from their contacts. In some cases I have deliberately refrained from mentioning their names; in others it was not possible for me to do.

I am grateful to the authors of numerous books and articles consulted. On them I have drawn freely for ideas and figures. At places I have even borrowed from them complete phrases and sentences. I have attempted to acknowledge them in the text as far as my notes, taken many times rather hurriedly, helped me. To those, who might have been inadvertently and unintentionally omitted, my debt of gratitude is even greater. For this unavoidable omission I offer them my sincerest apologies.

Lastly I must thank Mr. S. E. Abbott, I.C.S., Secretary to the Honourable the Premier of the Punjab for kindly going through the manuscript and making valuable suggestions.

KANWAR SAIN

Benmore, Simla E.
September 8, 1940.

PREFATORY

It would be but human on the part of my readers to demand an apology from me for undertaking to bring out a book on topics so foreign to an engineer's sphere. We were sent "to study the details of design and construction of high dams in general and to prepare as far as possible designs for the Bhakra Dam and connected works in consultation with experts in those countries (United States of America and Canada)" and to these objects, indeed, did we devote the whole of our time. The work both in the office as well as the field was so heavy to be completed in the short time at our disposal, that we had practically little time left to have a real "look" at America.

Our four months in America seemed like perpetual motion, day and night. In this brief period we covered about 13,000 miles by rail and 6,000 miles by car. The total distance travelled from the 12th April to the 29th October 1939, was about 41,500 miles, out of which ocean voyage accounts for about 18,000 miles only.

We saw numerous dams and hydro-electric works, some completed and others still under construction. Amongst those completed the Boulder Dam stands first on the list. In order to fulfil the four major purposes of flood control, water storage, silt control and generation of electrical energy, the U. S. engineers designed an arch-gravity dam rising 727 feet above bed-rock. The reservoir created by it is 115 miles in length, with a capacity of about 30 million foot-acres—by far the largest artificial lake in the world. The total powerhouse capacity is 1,835,000 horse-power. Firm power

available throughout the year is contracted at 1·63 mills* per K.W.H. and secondary power produced at the convenience of the government, at 0·5 mill, which in Indian currency is approximately one third of a pie per unit.

The gorge at the Boulder Dam site is very similar to the Bhakra gorge, where the Punjab Government has had under consideration the construction of a five hundred feet high dam for the storage of 4·75 million foot-acres only.

Of the dams that were actually under construction at the time of our visit, the Grand Coulee Dam was the most gigantic. It will be the largest in volume and the second highest of the masonry dams in the world. It is of the straight-gravity type. The gorge at this site is too wide for a dam of the arch type. The finished dam, will be 4,300 feet long at the crest and about 3,000 feet long at the base. From the lowest bedrock, the height will be 550 feet to the crown of the roadway. Its primary purpose is to irrigate 1,200,000 acres of dry desert in Central Washington. As, however, the dam will provide for the flow of a considerable quantity of water with a great head, advantage is taken to generate cheap electricity. In fact when fully equipped the power plant at Grand Coulee will be by far the largest in existence. The total ultimate installed capacity will be 2,700,000 horse-power.

Besides the experience gained by studying the details of design and construction at site, we were fortunate in securing very valuable literature from the Bureau of Reclamation. Most of these notes are in the form of Technical Memoranda issued in type by the

---

*One mill is one-tenth of a cent and is equivalent to approximately 0·6 pie.

Bureau for the reference and guidance of its own employees. All these, no doubt, will be of immense use to the province, when it undertakes any dam project.

The accessibility of the big American Executive is well known. We had in addition the advantage of contacts through diplomatic channels. In these contacts both in the United States and Canada, we felt the advantages India has in her connection with Great Britain. The Canadians treated us as brothers from another Dominion of the British Empire. The United States too, in spite of her legitimate pride, in her superb economic growth, remembers that she is of Anglo-Saxon origin and she has great respect for the British civilization from which she emerged.

That travel broadens the mind, is particularly true of engineers. To see engineering works in other countries carried out by different methods has great educational value for the engineer. Great benefit would accrue to India as a whole, if engineers are permitted to visit foreign countries frequently. Such visits, particularly to the United States are too expensive to be undertaken by an officer in his private capacity, however much he may desire to do so. But the actual cost to Government is small and the benefit considerable.

Our duties brought us in contact with all grades of people—from the lowest paid unskilled labourer to the highest placed engineers. The routes to engineering works, particularly dams, all lie through the most picturesque country; in fact they pass through most of the famous National Parks of the West. During our long journeys by rail and road we had many occasions to talk and discuss things of everyday interest with our fellow travellers.

Intelligent Americans have a great human quality, a keenness to know and a keenness to show. We were out to know, and they had any amount to show us. We had only to start talking for a stream of information to flow from them: Americans become friendly on the slightest provocation.

It was our good fortune to be invited to many American homes. Practically every introduction we had was followed immediately by an invitation to the home of a new friend. In these homes we found the real American atmosphere.

These discussions and daily contacts left impressions on my mind. Whatever appealed to me as interesting in the daily paper, I kept a cutting of it in my scrap book. In odd spare moments I scribbled some notes in my diary. It was, however, a job to straighten them out and put them in a readable form. To do this I decided to avail of my short privilege leave. This served to fill my vacation with a pleasant digression from the humdrum routine of the Department and provided the desired relaxation from engineering.

About India and Indian affairs there is, in general, colossal ignorance. During our stay we read only two items of news about India. One was about a "Yogi" being buried alive for 12 days, and the other about India joining the war. Two Indian names, however, were on everybody's lips—Rabindra Nath Tagore and Gandhi.

India-returned missionaries in America, as a rule, do not give a fair account of India, as most of them emphasize only her faults. On the other hand the Indian students create a good impression by their devotion to noble ideals and their earnestness of purpose.

There are numerous things which force their importance on the mind of a stranger during his first trip.

Each in turn captured my imagination; most of the scenes were new and strange, no matter how familiar I was with some of them already from books and pictures; the sky-scrapers of New York towering like giants amidst a swarm of pygmies and toy motor-cars; the flower shops on Fifth Avenue where some violets sold at five dollars a small bunch; the Radio City; and the Hollywood actors. But I soon realized that New York was not America.

If I were to follow some of the sensation-mongers, I might begin with an account of chain gangsters and kidnappers. I might dilate upon the frequent murders of husbands by wives, or beatings of wives by husbands and numerous cases of corruption and graft in American Institutions, which so prominently appear in big headlines in the daily press.

But such a picture would not be a picture of America. Even if such a book be buttressed, as it might be, by quotations from the daily press and the social workers of that country, it would not be the truth. If one said that Karl Marx suffered from boils, that Cromwell had a big wart on his nose, that Bonaparte was a victim of epilepsy, that Lenin was bald, that would be saying true things but if that was all one said about these men, it would amount to telling monstrous lies. To stress the minor infirmity of a man and to ignore his genius, to ignore that very thing for which mankind remembers and cherishes him, would be a criminal lie. The same is true of nations.

I do not claim to express America in all its aspects. By America I mean the United States of America. Other countries in the New World derive their inspiration and take their cue from this country. Out of a total population of 244 millions in both Americas, the

United States alone accounts for about sixty per cent. In the international sense also the United States represents both the Americas. She guarantees, through the Monroe Doctrine, to all the independent Southern and Central American Republics protection against foreign aggression. These countries are practically defenceless against an attack by sea. The only real protection against foreign aggression is the United States Navy. Their own naval forces are negligible both in quantity and in quality.

The United States, itself, is a continent, a thing in process, ever-changing, calling for fresh and further exploration each time. It is impossible to imprison it between the two covers of a book. An American poet has truly said:

> "America ! half brother of the World !
> With something good and bad of every land."

The descriptions in the book are only impressionistic sketches and their value, if any, lies in that alone. They are the impressions left by America on the mind of a middle-aged Indian with a strong Indian background. They could not be anything else. A man wearing yellow spectacles cannot help seeing everything as if it were coloured yellow.

I may have forgotten a few of the "sights" but what I heard in moving trains and buses and from taxicab drivers, or what I saw in streets and restaurants and in American homes comes back to mind again and again. America has her own gigantic problems. She will tackle them without any help or interference from the rest of the world. But I had not gone there to study their problems. I had neither the time nor the requisite equipage or qualifications to study them. Besides my

technical problems, I was interested only in the every-day life of that great nation, particularly on points which might have a bearing on the current life in my own country.

This is, then, my apology for "America through Indian Eyes". I am neither an economist nor a historian and am only too aware of my literary shortcomings. For these I crave the reader's indulgence.

KANWAR SAIN

I

ON THE WAY TO AMERICA

We left Lahore on the night of the 12th April, 1939, and reached Bombay on the 14th noon. Bombay is perhaps India's best town. The day was spent in looking round Bombay's many interesting places and sites. The harbour of Bombay ranks with those of Naples, Sydney and Rio de Janeiro. It is alive with the craft of all nations. Its wharves are piled high with the merchandise of the East and the West. It is, however, a town of very recent development. In 1661, the Portuguese voluntarily yielded to the English Crown the last of their important possessions, the city and district of Bombay, as a part of the dowry of the Portuguese Princess Catherine of Braganza, when she was betrothed to Charles the Second. So ignorant were England's official statesmen at the time of the value of the gift, which they regarded as a most unprofitable appendage that they, in their turn, ceded it to the East India Company for the ridiculous consideration of an annual payment of £10 sterling.

Our boat was to sail off the Ballard Pier on the 15th noon. On the Pier was a heterogeneous crowd of all nationalities in all sorts of dresses. There were the coolies in their turbans and loin cloths and the brass badge with their number fastened round their arms. There were the uniformed agents of the various travel agencies. Some peons of the Government officials looking gorgeous in their red coats, gold braided and bedecked, had obviously come to leave their masters. Amongst Europeans one saw the anxious husband and father who had come from a distant place to bid farewell to his wife and child returning home in the hope of

regaining their health and strength in a cool climate. There were Parsi ladies in gay dresses, the harmonious hues of their graceful *saris* contrasting with the more sombre and more western clothes of their husbands and brothers.

Over the gangways rushed the porters carrying luggage. Men shouted and cleared a space, as the huge cranes swung round lifting piles of cabin-trunks. The sides of this ship were like the sides of a cliff. From the high port-holes, gazed, here and there, a face like the face of a cave-man looking down into a valley.

The thrill of imminent departure was in the air. Men looked at watches. Each second had its value. Smoke came from the funnels of the monster "Strathaird".

A siren blew :

"Visitors off the boat please".

My wife walked down the gangway without saying as much as a good-bye. It was my first long departure from her. How she wished to accompany me on this trip but the idea was soon ruled out on account of both the strenuous nature of the travelling I had to do and the expense involved, which I could ill afford. She must have thought the ship to be an inhuman monster, dragging me away from her. The endless miles between me and her began as soon as her foot reached the shore.

The siren laughed again with fiendish hoots, and slowly—so slowly—the ship moved with two tugs beneath her great bows. The inch between the ship and the dock-side widened to a yard. Sushila stood there watching as the liner found her way inch by inch into the Arabian Sea. From her point of view I was already in New York. She kept a steady gaze and for

a mile or so I could see a tiny white handkerchief still waving in the distance.

The first ocean crossing holds more glamour than a hundred succeeding ones. This voyage uneventful to the seasoned traveller was one of exploration to me. I had watched passengers stream down the gang planks of steamships at Karachi, but never before had I felt the throb of the mighty engines of a giant ocean liner.

Lazily passengers moved to their cabins. Stewards ran here and there. Dazed-looking passengers wandered about, wondering how they had taken the wrong turning and if they would ever find the way back to their cabins.

After checking our luggage we proceeded on what I call a tour of inspection. We went down endless corridors. By the time we finished we must have done very nearly a mile. With the eagerness of an explorer I saw the vast lounge, the dining room bigger than the dining room in any hotel, the swimming pool and the various outdoor games provided to give the passengers a good appetite. Bath rooms were exquisitely arranged. With their floors of glazed tiles and handles of oxidized brass these looked very impressive.

On the fourth day we were nearing the port of Aden covering a distance of 1,710 miles. In 1820, four or even six months was no abnormal time for despatches to take between England and India. This meant anything up to a year for a reply to be received.

In the beginning ships with their goods travelled from India by sailing dhows to Egypt, across the desert by donkeys and camels to the Nile and down it in sailing boats to the Mediterranean. The journey across the Indian ocean was made either way in favourable season, to avail of the help of the monsoon gales. This method

of crossing the Indian ocean by dhows continues up to the present age ; it was only in 1936 that the P. & O. "Viceroy of India" came across a tiny dhow with her crew of two out of both provisions and water.

In those days the dockyards of Bombay could supply to the English mercantile fleet and to the royal navy, ships to match the work of the best European craftsmen. In 1800 the port of Calcutta alone possessed 100,000 tons of shipping built in India.* At present the country possesses no shipping except small indigenous crafts for coastal trade. When the foreign trade was negligible in quantity, she had a large number of ships ; to-day when the volume of the foreign trade has risen to 600 crores of rupees annually, it is entirely carried on in foreign vessels, and this in face of the fact that the country possesses all the resources for the successful development of her shipping industry. The obvious reason is that India did not keep pace with the development of steam.

The first steamship to cross an ocean was "Savannah" built by America in 1819. It was then figured out that with the aid of steam, a ship could make the passage from England to India in 70 or 80 days round the Cape of Good Hope.

A lakh of rupees was offered from India to any British Company or individual who by the end of 1826 should have established a permanent service of steamers which would make two out and back voyages each year, taking not more than 70 days in the voyage each way.

This offer led to the construction of the "Enterprise" of 479 tons and 120 horse-power. How tiny it looks as compared to the P. & O. liners of the present day of about 24,000 tons and 24,000 horse-power.

---

*Pages 22 & 23, Wealth of India, by Wadia & Joshi.

The "Enterprise" sailed with 17 passengers from London on the 16th August, 1825, and arrived after 113 days at Calcutta on the 7th December. This failed to earn the promised offer. The company, however, was saved from loss by the Indian Government purchasing the steamship at approximately the cost price for the Burmese War.

A half-hearted attempt was made by the East India Co. to build a steamer at Bombay. This steamer, however, was not given its full bunker capacity to store the coal for even ten days, the period in which it was estimated that the steamer would cover the distance between Bombay and Aden.

In 1850, the P. & O. Co., constructed five new ships; one of these was called the "Himalayas" as this was the largest and most powerful in the world at that time. She was then wonder of the shipping world, of 3,500 tons and 700 horse-power with screw propulsion. The company got, however, into financial troubles and was saved from a disaster only by the Government coming in for help again by the purchase of the "Himalayas" for the Crimean War.*

The changes that have taken place in one century in the art of ship-building can best be described by a quotation from "A Hundred Years' History of the P. & O.":—

"Neither the deck officers nor the engineers of 1837 would be able in 1937 to make the wildest guess at where to begin on their job.

"Imagine the 1837 commander led up the covered gangway and in through a door in the middle of the towering cliff of the 1937 liner's side and by a labyrinth of passages and alleys and companion-ways up to his

* Hundred Years' History of the P. & O. by Boyd Cable (1937).

bridge, and left there to get on with the job. He would find himself surrounded by an array of 'gadgets'—devices of depth echo sounding, smoke detection indicators of fire anywhere in the ship, levers and wheels for closing bulk heads, for signalling the engine room to go ahead or astern, fast or slow, innumerable switches and telephones for use of the electricity of which he had never heard, save as a fantastic dream.

"Imagine again the 1837 Chief Engineer dumped down in the engine room of the 1937 P. & O. liner. Under, over and around him he would find a nightmare tangle of polished steel and gleaming metal, the accumulated mass of intricate machinery for propulsion and for subsidiary electric lights, refrigerators and cargo, life boat winches, power, and the rest, packed into a space incredibly small to us, but more incredibly large to him as a mere section in any ship's hull. He would also find a jungle of indicator dials, switches and instruments even more numerous and hopelessly bewildering than the unfortunate commander found confronting him up on the bridge."

It was on the 20th that we passed through the proverbial inferno of the Red Sea. Passage through the Suez Canal on the 22nd morning was simply enjoyable. The Suez Canal is a testimony of man's effort to annihilate distance.

It was amusing for me to read in "A Hundred Years' History of the P. & O. that the whole project was objected to from the first to the last by the British government who used every public and private means at their command to squash it. They feared that the Suez Canal would jeopardise the British maritime supremacy, and that if the canal were in French hands (as it was planned to be) this would open to France a route to India, which might be denied to the British, in

any war. Even the leading engineers poured forth a continuous stream of hostile criticism, that the whole project was impossible and doomed to failure ; up to the actual day of the opening there were still many engineers, who prophesied that the canal could not succeed, that it would silt up and cost more to keep it clear than revenue would provide.

Notwithstanding the bitter opposition of the British government and the hostile criticism of the so-called experts France rose equal to the task. The work on the canal was taken in hand in 1859. The original capital of 200 million francs was almost exhausted before anything more had been accomplished than the digging of a mere scratch over various sections. Several times it looked as if the whole thing must collapse. Further finances were however secured for the Company and the whole work was completed in 1869 at a cost of 433 million francs, more than double the amount originally estimated.

To-day it is the British cargo that predominates in the Suez Canal and the canal yields a handsome dividend on its original capital cost.

On the 22nd we reached Port Said. Main bazar of Port Said almost stares at the harbour. We hurried to the customs house to get through our luggage and had the first experience of Port Said. A boatman settled with us that he would charge 6 pence for the two of us for taking us from the ship up to the custom house. When we reached the destination, just a few minutes' way, we offered him a shilling. He, however, insisted on charging one shilling each and said that if we did not pay, he would not let us land.

Getting through the customs house was rather a laborious process.

During our short stay in Egypt we gathered the impression that Egypt is a country of tips. Tip is demanded for everything, whether done or undone. The dragoman (possibly a Turkish word for a guide and interpreter) is really a dragon for the tourist.

As there was about an hour before the departure of the train we went for a stroll to the town and on the return journey to the railway station we asked a passer-by, if the road we were following was the correct one for the station. This was just to make sure, so that we did not miss the train. He was kind enough to say that as he was going to that side he would show us the way. The station was only 3 minutes' walk from that place and it was a straight road. When we reached the station he demanded one shilling as his fee.

At the railway station itself, we had a still more amusing incident. A newspaper hawker produced the 21st April issue of the Egyptian Mail. Questioned about the date, he assured us, that the issue of the 22nd April had not yet reached Port Said. He charged two piastres* for this issue, although the price printed on the front page of the paper was one piastre. His argument was that the price of one piastre was at Cairo, but there are extra charges for arranging to get the paper from Cairo to Port Said. After a couple of minutes came another hawker and offered us the 22nd April issue of the same paper and accepted only one piastre as its price.

The train reached Cairo at 4 p.m. Cairo is a magnificent European town spread out and extended on both sides of the Nile. The population exceeds a million. It is full of modern buildings with numerous shop windows. The coffee-houses were always crowded.

---

*One piastre = a little more than two annas

Traffic in the main streets is controlled by automatic lights.

There is, however, an old Cairo where narrow and covered streets still exist. The Egyptian is not too keen to show the old quarters. He will take you round the modern extensions, about the gardens and the gezira.

While the Egyptians are striving hard to modernise Egypt, they are not without pride in their past. A lot of expenditure is being incurred by the Egyptian Government in preserving and restoring the old Egyptian monuments. An old Nilometer* has been recently restored at a considerable expense. The museum of Cairo contains valuable Egyptian antiquities. The mummies which raised the tourist's interest previously have been withdrawn under the orders of the King. The treasures brought back from Tout-Ank-Amen's tomb stream all over the front rooms with such profuseness and splendour, that they obliterate, at least for a while, all the rest of the museum. One could see nothing else, but only look at them.

"After the three sacrophagus there is the exposition, the display, the glow of jewels, bracelets, necklaces, pendants, peerless enamels, on which the goddess of death unfolds her dark wings, blue as the beautiful Eastern nights all lit up with stars. Here are some small alabaster statues, which the day-light pierces with pink arrows, here is the royal throne, and to answer the call of the god, here are the statuettes of the servants, quite numerous, and here are also the most humble objects, intended for that parody of earthly life after death, and even gloves—gloves in Egypt. But the jewels monopolise the visitor. Our

---

*A structure to measure the height of floods in the Nile River.

most modern artists can seek here for models, as Bonaparte's expedition had brought back the future Empire style. The graduation, the richness, the dead lustre of the hues, make master-pieces of jewelry out of those enamels."*

Tout-Ank-Amen's treasure is the only one, up to now, which has been found intact in the tombs of Egypt. Even then, it had been thrown in anyhow, heaped up in one room, probably by disturbed burglars. It was not found in its place in good order, all round the mummy. It is almost difficult to believe that all that treasure could have been found from one tomb.

It is remarkable testimony to the height of civilization Egypt must have reached several thousand years before the birth of Christ.

In Cairo, Miss Egypt enters eagerly into the social life of the city. She attends cinemas, dances, theatres, and often takes interest in politics. Through the busy streets of Cosmopolitan Cairo, it is a common sight to see her driving her own automobile. It would be of interest to India that one telephonist girl Mademoiselle Lutfia of Nadia was the first Egyptian girl to fly solo and is now Egypt's foremost woman pilot.

The veil is practically absent. Even where it exists, it is so transparent that the features could be recognised. It was a Frenchman, who remarked that it helped the Egyptian woman to conceal unpleasant and dull complexion, adding that a European woman concealed it still more skilfully with her make-up.

Queen Farida is taking a very active interest in breaking down the old traditions. The Queen is keen that she may once more see a culture and civilisation, equal to that of the Pharaohs, with women keeping the

---

*The Inscrutable Sphinx by Henry Bordeaux.

place which, thousands of years ago, was her heritage.

The Egyptian girl is eligible to enter nearly every department. Education and nursing are the most popular careers ; medicine and law come next and architecture also offers some appeal. With an opportunity of so many professions and earnings, early marriages which were customary for Egyptian girls, are no longer the rule, women organizations urge that the minimum age for marriage be fixed at eighteen for men and sixteen for girls. Nearly every Arabic daily newspaper has an exclusive page for women.

We went to see the industrial exhibition at Cairo. Neither the taxi-driver nor the man on duty at the gate knew English. We were, however, not allowed to go in. After a short futile attempt to explain the reason by words, the gate-keeper had a brain wave. He touched his breasts indicating thereby that it was a women's day.

We spent the 23rd in seeing officers in the Irrigation headquarters at Cairo. They were most hospitable, courteous and helpful.

On the 24th we left for Assiut to see the Assiut Barrage. Two Egyptian engineers met us at the railway station and very kindly took us to the canal rest-house. We spent the afternoon in seeing the barrage with them. The Assiut Barrage is situated 546 kilos from Assuan Dam. It is built of limestone and was completed in 1902 in order to give summer water to the converted area in middle Egypt and was only regulated in flood for the benefit of the basins by a decision made after it had been constructed.

It has 111 openings of 5 meters wide, divided into twelve bays of 9 openings each and a bay of 3 openings on the west side next to the regulator. The bays are

separated by abutment piers 4 meters wide, other piers are 2 meters wide. The maximum allowable head is 3·20 meters. There are three gates in each opening, two of 2·50 meters height, and one of 2 meters.

This barrage was recently remodelled to cope with the new conditions resulting from the increased storage due to the heightening of the Assuan Dam and the construction of Gebal Aulia Dam in Sudan. It will enable improved summer rotations in the areas served by the Ibrahimia Canal and earlier irrigation of fallow land awaiting flood cultivation and will also enable the conversion from basin to perennial irrigation of some areas, which do not now receive summer water. In the course of development, the perennially irrigated area will be increased from 1,050,000 feddans* to 1,257,000 and basin lands will be reduced from 330,000 to 74,000 feddans.

On the morning of 25th at 1.20 a.m. we left for Assuan. The distance to Assuan is a long journey about 504 kilos.†

Ticket-checking in the railway trains in Egypt is very thorough. Two checkers come practically every two hours or so. On one occasion we were woken up at about two o'clock in the night in a first class compartment, to show our tickets. The Farash (a porter in charge of the carriage) demanded his tip immediately we entrained. His argument was that he would change duty at Luxor at 6 a.m., by which time we may not be up. Before he left Luxor, he did realise his tips.

The journey though monotonous was quite comfortable. There was a tap in the carriage for iced water for passengers, something which is badly needed

---

*One feddan = 1 acre approximately.
†One mile = 1·635 kilos.



An Egyptian girl bearing a pitcher on her head.

in Indian railway trains. The whole country was motionless, to which the train alone gave life. Beyond the delta Egypt is nothing but a long green gallery, enclosing the Nile between two deserts. "The horizon is blocked by small pink mountains, which look like little girls dancing in a ring at dawn." On both sides the eye meets either the verdure running along the river or the yellow sand in the distance. Sometimes a factory chimney disgraces the landscape. Here and there a fellah was reaping the barley with his little sickle, or a Ruth was picking up the neglected ears while her sister was putting the sheaves together and the men were loading the kneeling camels. At long intervals, there were village women going to the river bearing their pitchers on their heads. Villages, as in India, were of dried earth, their roofs covered with rubbish.

We reached Assuan at 10.30 a.m. and were taken to the irrigation rest-house, which was a most up-to-date building. These rest-houses are fully furnished not only with crockery but with beddings also and are provided with flush toilets.

The day was hot and there had been no rain for the last several years. We were told that at Assuan it rained only once in 7 years and even then it was not more than a few drops. During noon hours, we had interesting and instructive conversations with the engineers in charge of the dam, and in the evening we proceeded to have a detailed look at the dam. We had a look at the granite quarry, where lies an incrusted oblisk still in its stone sheath, but which enables one to see, in all its details, the work of the hewers and sculptors, who rough-hewed on the spot those huge blocks, the removal of which still astonishes the engineer of this age.

The dam on the huge Nile is a symbol of man's power.

"As he gave the horse a bit to guide it as he pleases, the man said to the river : 'You shall obey me, I will regulate the course of your waters, according to the needs of the earth and seasons. From now on, you are no longer the master.'"

The Nile undoubtedly has been a salutary master. It gave life to Egypt, fertilizing the lands on its way and changing the delta into a garden and a vast field of cereals. The ancient Egyptians chose to impute the phenomena of the yearly flood to the gods. They did not know that the course of the Nile was 3,500 miles long. Who could believe that the mass of water which passes at Khartoum in the beginning of April only breaks into foam at Assuan two months later!

The engineering details of the dam may not interest the reader. The lake created by the dam has added to the beauty of the landscape.

On the 28th morning we returned to Cairo and called on the British Consul General. The following day we went to see Mohd. Aly Barrage which is situated at a distance of about 10 miles from Cairo. On the 30th morning we called on His Excellency the Under Secretary of Public Works in Egypt. On the same afternoon, we left for Port Said. Our boat the "S.S. Multan" left the port about midnight.

We carry a very happy memory of our visit to Egypt. The Egyptians are a fine lot of engineers and the whole of irrigation service in Egypt has been practically cent per cent Egyptianised. Their treatment towards us was nothing short of brotherly. From top to bottom every one of them was most cordial.

Our boat touched Marseilles on the 5th morning and we left the same day by P. & O. special train for Calais. The train was very luxurious and France was all a green meadow. The English Channel was comparatively calm. We arrived at London Victoria Station at 3.30 p.m. on the 6th May and were met at the station by Mr. and Mrs. Bedford.* They took us in their car to their house, where Mrs. Bedford had made perfect arrangements for our stay. She had seen to the minutest details. It was very interesting for me to see and live in an English home. An Englishman in India lives quite differently from an Englishman in England.

To our good luck the weather was exceedingly fine. The country-side with wide clean roads and green verdure on all sides was very bracing.

The Thames, the largest river in England, looked like a big canal ; its total length is only 210 miles.

A good part of our time was spent in India House, the office of the High Commissioner for India. India House is an imposing edifice. It was designed by Sir Herbert Baker and built at a cost of £324,000. It was opened by His late Imperial Majesty King George the Fifth on the 8th July, 1930. The exterior of the building conforms more or less to the architectural style of adjacent premises, but, within, every attempt has been made to capture the spirit of India, in the architectural designs and compositions. Indian timber has been exclusively used in its construction. Other Indian materials have also been used, wherever possible, for constructional and decorative purposes. It has beautiful paintings done by Indian artists.

*Mr. J. D. H. Bedford, C.S.I., had only recently retired from the post of Chief Engineer and Secretary to the Punjab Government, after opening the Haveli Project.

Everything inside the building combines to emphasise the essentially Indian atmosphere. The activities of India House fall under six general departmental heads : Accounts, Education, General, Public, Stores and Trade.

The Accounts Department deals with extensions of leave, medical examinations, commutation of pensions, payment of salary and pension to civil officers arriving from India or Burma.

The Education Department advises and assists Indian students who go to England for further studies. It also arranges for their admission to British universities, clubs and educational institutions generally. This department publishes " A Handbook for Indian Students " which forms a comprehensive guide to the students for university and professional studies and training in the United Kingdom.

The General Department is concerned mainly with the recruitment of staff for the Government and public bodies in India and with the supervision of government officers on deputation and study leave. It is supposed to look after the interests of Indian nationals. It advises on all matters relating to passports, visas, travelling facilities and the like.

The Public Department deals with public and international matters. It maintains an up-to-date library relating to India. The reading room obtains a number of Indian newspapers and journals. Both the library and the reading room are open free of any charge to students and visitors from India.

The functions of the Stores Department comprise purchase, inspection and shipment of stores required by the central and provincial governments in India. For this purpose a staff of experts in the various

branches of industries is maintained in London and in the provinces. The articles, dealt with, include equipment, munitions of war for the Indian Defence Forces, plant and machinery for hydro-electric and irrigation works, railway stock and surgical and medical equipment.

The main functions of the Trade Department comprise of commercial intelligence and publicity in respect of Indian export trade and industry, and include representation of Indian interests on commercial and technical committees.

During the short time at our disposal, we managed to pay a visit to the National Physical Laboratory. The purpose for which the laboratory was founded and which it continues to fulfil, was to carry out research including special research required for the accurate determination of physical constants, to establish and maintain precise standards of measurements and to make tests of instruments and materials. It also undertakes analysis of special problems on behalf of government departments, for research associations representing various industries and for technical institutions, industrial firms and others. When the information needed is already available, it is supplied free of charge. The laboratory covers a site of about 50 acres and its total strength is about 750 men, out of which there are about 30 senior scientists and about 200 assistant scientists. We were struck by the variety of the research problems tackled in this laboratory.

On the eve of our departure from London, I wrote home, "six days in London, what can you see in six days ? You can say, I have just peeped into a big hall from the door and seen that the hall contains many things worth seeing."

The "Dutchess of Athol" left Liverpool at 3.00 p.m. on the 12th May. The 17th and 18th were cold and foggy. The boat passed through Quebec on the 20th evening. The slums of Quebec are as repulsive as slums in any Eastern town. Their Majesties, the King and Queen of England had landed at Quebec on the 18the morning, and we were very lucky in seeing all the decorations put up for Their Majesties' reception.

We reached Montreal on the 21st noon. The Custom authorities were very considerate indeed.

After seeing some very interesting dams built for hydro-electric purposes in the province of Quebec we proceeded to Ottawa on the 26th, where our arrival was thus announced by the Ottawa Journal :

> "Two high executives of the Indian Civil Service, Sahib A. M. Khosla and Sahib L. K. Sain are in Ottawa, and conferred with officers of the Surveys and Engineering Branch of the Department of Mines and Resources."

II

AMERICA—A PROOF OF MAN'S CREATIVE EFFORT

It will be generally conceded that the transformation of the North American continent in less than a hundred years from what it was to what it is, remains the most staggering of known events in history. The America that Columbus discovered was geographically a new world. Since then, as a result of revolutionary changes at various stages of its history, it continued to claim its reputation as the new world, requiring to be rediscovered by the old world on each occasion.

It was only 164 years ago that 13 little jealous colonies on the Atlantic Sea Board were still under the domination of King George III. America of 1776 seems as far in the past as the world of the Pharaohs or of the Cæsars. Little remains unaltered save those humble promises made by man to his fellow man and given immortality in the famous Declaration of Independence.

In those days a man could be put in jail for debt and kept there until it was paid. With few exceptions no unpropertied citizen either in the American colonies or in any corner of the globe had the right to vote. No more than 10 per cent of the population could read and write.

Man worked from 12 to 16 hours a day. Housewives worked even longer. Woman's legal position was little more than that of a chattel. Youth was bound into long and ill-paid apprenticeship.

The divine right of Kings was largely accepted without question. Man was only beginning his revolt against caste and inherited position. There was no freedom of worship, or genuine freedom of speech and assembly.

The field of medicine and surgery was little advanced from the days of the Greek Hippocrates. The priceless words—Public Health—had never once been hooked together. Microbes and the whole microscopic world were as distant and unknown as the outer planets. Anæsthetics and antiseptics had yet to be conceived.

The fastest means of transportation in the world was a running horse. Only the crudest steam engine had been invented. Water, wind, animal and man were the only known sources of power. Electricity was but vaguely suspected.

All these and a thousand forgotten items of ignorance have largely disappeared. Thanks to the imaginative energy of these 164 years.

Vast unprecedented social revolutions, political revolutions and equally important mechanical and scientific revolutions all have come during these magnificent years.

Americans claim and perhaps rightly that the new world that was to follow the old world of the 18th century was largely born in the single document of the Declaration of Independence on July 4, 1776. This declaration released man from the mental and physical slavery that had held him for so many centuries in a peculiar bondage. In a brief period of 8 score years, man's whole spiritual and material world was to be changed, as if by some great magic.

The condition of America's poverty at this time might be gauged from the fact that 3,000 out of 14,000 of George Washington's effective men were "barefoot or otherwise naked"; hundreds of them had no beds; others had no blankets.

To-day America has 15 billion dollars worth of gold stocks out of the world's 26 billion dollars or 57 per cent of the monetary gold in the world.

In the early nineties hunger and want drove a part of Europe's ambitious population in search of necessities of life to this unknown land. European capital and skill was still the driving force behind. To-day, to the American, Europe is a land of paupers, and Asia a continent of starving wretches!

Luxury in every day consumption and the extension of the many living conditions, previously reserved for the few, are new phenomena in the history of mankind. Every American possesses three pounds of butter and every third of them has a powder puff and lipstick.

On the Grand Coulee Dam Mr. Jack who drove us in a Government car used to come from his own residence in a Buick. He left the Buick at the Government garage where he picked up a Government Ford for showing us round. After the day's job he left the Government car in the Government garage and went back home in his own Buick. There is practically no family which does not possess a car. In fact, in some families every member of the family has a car to himself. An American engineer friend told us a very interesting anecdote. He purchased an expensive car. The very next day his caretaker purchased exactly the same make. A friend of the family asked the caretaker why he had gone in for such an expensive car.

The caretaker replied with an air "me and my master have nothing but the best."

On public works we saw long rows of cars which belonged to workmen.

Science, inventions, abundance of materials and the dynamic force of the country's guiding spirit have given to the millions conveniences and advantages that would bring a sigh of envy from Emperors, Moghuls and Cæsars of the past.

Never before in history has finer living been attained, nor has it been enjoyed by so many people as in the richly endowed United States.

The United States comprising only 7 per cent of the world's population, controls more than 45 per cent of the world's total wealth. Here people enjoy the highest real wages, shortest working hours and the greatest percentage of home ownership on earth. Thanks to the abundance of raw materials, her conquest of wealth has reached a point unknown elsewhere in the world.

The nation, less than a hundred years ago, lived in log cabins. It has now, throughout the continent, built cities more impressive than London and Paris. Perhaps no other city in the world has buildings of such a height as New York. The Empire State building has 104 stories.

A country of about twice the size of the Indian Empire is accessible with ease throughout its length and breadth. It has built up the most marvellous system of communications. The total tonnage of vessels passing the Great Lake System—Lake Superior and Huron being joined by the "Soo" Canal—is three times that passing through the Suez Canal. The United States have more than a quarter of a million

miles of railways. The total length of railways in India with a population three times that of United States is only 43,000 miles. The American railways are long enough to go round the world at the equator ten times.

The vast natural resources of the country with the will of the people to exploit them have given the United States a unique position in the world trade. The total trade of United States of America is about 4 times that of India or Canada. According to 1924* statistics the United States produced:

38 per cent	of the	world's coal
70 per cent	,,	petroleum
38 per cent	,,	electric power
54 per cent	,,	copper
40 per cent	,,	lead
33 per cent	,,	iron ore
75 per cent	,,	corn (maize)
25 per cent	,,	wheat
30 per cent	,,	cereals other than wheat
55 per cent	,,	cotton
33 per cent	,,	tobacco

These quantities vary from one to three quarters of the world's supply, though the area of the country only represents 5·7 per cent of the land surface of the globe. America, thus, has an exceptionally large share of the world's wealth.

America no longer gets inspiration from Europe. Americans are already as foreign to Europeans as Chinese or Russians, if only they spoke a different language. And every day they are coining their own language; soon it may only have roots in English.

*After the Great War, the trade of U.S.A. assumed special importance.

Already its literature has parted company with that of England. The American literature is, in fact, being written in the American language. It may in the near future be capable of translation like any other language.

Americans have already an architecture of their own. The solemn temples, the gorgeous hotels, and the cloud-capped towns bear unmistakable testimony to a new force, a new kingdom, and a new race. The dazzling beauty of the New York's World Fair was, indeed, the finished expression of the World of To-morrow.

America has not yet ceased to grow. It is still challenging new frontiers. Americans have an appetite for the best that life affords. Their slogan is "Don't do to-day what you did yesterday, do something better."

Americans claim that the controlling power in the Western civilization has crossed the Atlantic.

"America which was once a colony on the Frontiers of Europe, is now and will under the next generation become even more certainly the geographic, economic and political centre of the Occident. What Rome was to the ancient world, what Great Britain has been to the modern world, America is to be to the World of To-morrow." *

---

*Walter Lippmann in 'Life' under 'The American Destiny.'

III

FOUNDERS OF AMERICA

What are the causes that the United States in a brief period of 8 score years has come to occupy such an important place among the nations of the globe? The American nation gives a reply to this question during the month of February. During this month it celebrates the birthday anniversaries of two of the most famous characters in American history—George Washington, and Abraham Lincoln. It is due to these two great souls who laid the foundations of American liberty, "well and true," that America owes its present day material prosperity. They were both giants among men. Without Washington, the Republic of the United States of America would probably never have come into existence and without the guiding genius of Lincoln the Republic might have been torn into pieces.

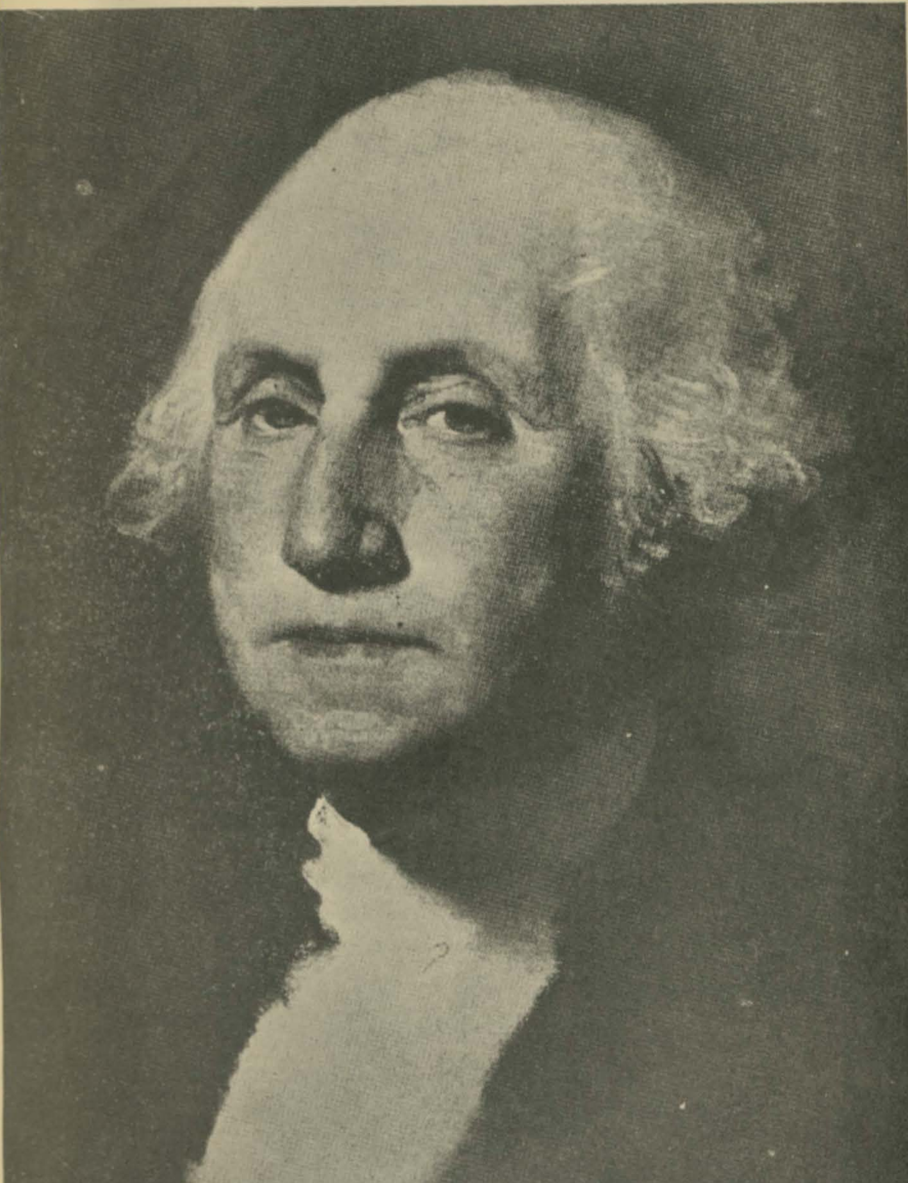
"Washington was the directing spirit," said President Coolidge once in the Chamber of the House of Representatives, "without which there would have been no independence, no constitution, no Republic." He was furious at the wrongs his country had suffered at the hands of a governing nation. He was a patriot of the first order. In his patriotism there was no alloy of selfishness. As one of the richest men in all America, Washington by espousing a people's revolution had risked far more than had most of the other leaders. Yet he was among the first at the Continental Congress to pledge his life and fortune to the cause of American independence. Truly is he respected as the Father of his country.

Washington was a great soldier. When he was appointed as Commander-in-Chief he had a nominal army of 17,000 with perhaps not more than 14,000 effective. Unlike most of the English soldiers, the American soldier was not a professional. He was not only untrained, but "ill-clad, badly fed and worse paid." Washington had to face the well-disciplined, well-fed English battalions with raw, ragged recruits. The American army had no engineers who knew the science of war. There were too few surgeons and nurses. Hunger was a constant haunter. During the terrible winter of 1777, Washington wrote to Congress, that nearly three thousand of his men were "bare-foot or otherwise naked. Their route could be traced on the snow by the blood that oozed from their bare, frost-bitten feet."

"A part of the army," writes a historian, "had no bread for three days, and for two days no meat. Hundreds had no beds, and gladly slept on piles of straw. Others had no blankets, and sat up nights before the fire to keep from freezing. Many sickened and died."

A lesser man than Washington would have failed at the very outset. He had, however, the essential qualities of a great leader. He did not give in when "whole regiments deserted and gave themselves up to open plundering. Officers quarrelled over ranks as dogs over bones ; there was graft and corruption with army supplies, and, as money came from voluntary contributions of the States, funds could not be relied upon." To add to these harassing difficulties, there were knives of treachery, treason and disloyalty constantly at Washington's back.

At the battle of Monmouth, Washington gave General Charles Lee the command of the advance



George Washington.

guard with positive instructions to attack and hold the English engaged until Washington came up in overwhelming force. Lee, however, was a traitor at heart; and instead of attacking he retreated almost before the English had fired a shot.

When Washington dashed to the front, he found Lee's forces in full flight. He rode straight to Lee, called him, in blazing indignation, a "damned Poltroon", and himself took the command. Had it not been for Washington, the Lee treachery might have annihilated the colonial army and ended the Revolution then and there.

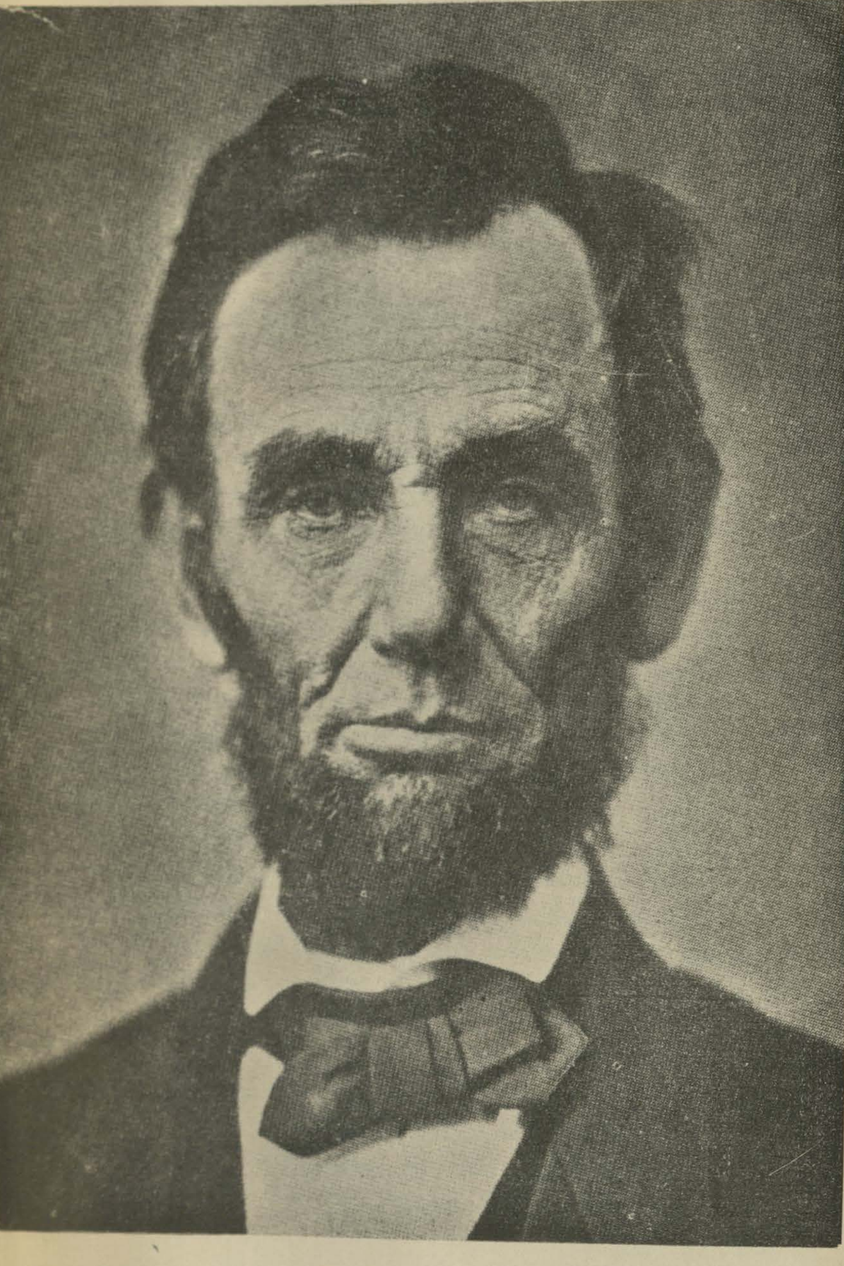
Washington was even a greater statesman and knew no glory but his country's good. The Declaration of Independence on July the 4th, 1776, was not a law or ordinance passed by the Country's Legislature or Government. It was but an earnest appeal to the natural right of revolution. The American revolution for independence was, in the beginning, not a unanimous affair. It was only a movement of the "discontended," "disloyal" minority. Half of them were "either opposed to the movement or quite out of heart about it." Washington, at times, considered solemnly the chance of a disgraceful end in London. To such a plight had the revolutionists come with a year after their hopeful declaration to all the world that Benjamin Franklin considered himself happy in Paris, where he could escape the noose.

While the country was in the midst of a terrible life and death struggle, the American Tories not only had no sympathy for the revolution but they went straight against their country and actually fought on the side of the English. They considered independence as barbarism, and painted the American revolutionists as savages.

How did the three million heterogeneous inhabitants scattered over thirteen Colonies, jealous of each other, fight against 8 million Britishers with battleships on every sea? No doubt they were helped by French skill and French money, but the glory of winning independence goes to George Washington and the band of that brilliant group of men who worked with him. How truly did Benjamin Franklin declare in these troublous days "We must hang together or we shall hang separately."

Washington to-day is a world hero. He is one of the most outstanding figures in the political history of the world. As a human being he had some human weaknesses, but his essential greatness far surpassed his surface blemishes. During the 8 years of revolutionary war, he had met "crisis after crisis," with his own private fortune and neither as Commander-in-Chief nor as President had he taken even one cent of salary.

Abraham Lincoln came on the scene in 1860. There is an unmistakable feeling in America that Lincoln was even greater than Washington. Abraham Lincoln "belonged to a generation born and reared under influences almost one hundred per cent American. His food, clothing, education, reading, and the life and habits of his associates, all belonged to the forest and soil of America." Washington was enormously wealthy, but Lincoln's very poverty was an incentive to self-improvement and self-education. The picture which appeals most powerfully to American imagination is that of young Abraham studying by the faint light of faggots, and doing his problems of arithmetic on the back of the wooden shovel. Washington, though a lukewarm Christian, was a member of the Church, while Lincoln was a free-thinker. He cared



Abraham Lincoln

little about orthodox religious guff and much less about myths and fables of the Bible.

To appreciate Lincoln's part in laying the foundations of the present United States, it is necessary to trace briefly its history after the War of Independence. The thirteen sea-board states began extension by spreading mainly westwards. Repression in Europe helped immigration. Tales of vast territories and high wages attracted large numbers from the European countries. As the population spread to the west, new states were formed and added to the Union. Napoleon sold the French colony of Louisiana to the Union, as he was unable to defend it from British naval attacks. A few years later, a purchase from Spain brought Florida to the States. In 1849 a successful war with Mexico brought several States in the South-west including California.

Between the Northern States and the Southern there was a great difference from the very beginning. The Northern States were industrial, where the new big machine industries spread rapidly, in the South there were large plantations worked by slave labour. Slavery was legal, but in the North it was not popular and had no economic significance. The South depended entirely on slave labour. Some of the States abolished slavery while others retained it. Negroes would often run away from a slavery State to a non-slavery one and there would be disputes about them. As early as 1830, friction arose between the North and the South about tariffs and custom duties. Threats of breaking away from the Union were made. The States were jealous of their rights and did not like too much interference from the Federal Government. Two parties arose in the country; one favoured State sovereignty, the other wanted a strong Central

Government. All these points of difference divided the North and the South farther from each other and whenever new states were added to the Union, the question arose which side they would support. The population of the North was increasing rapidly because of immigration from Europe, and this made Southern people fear that soon they would be overwhelmed by the numbers of the North and outvoted on every question. So tension increased between the North and the South.

Meanwhile an agitation grew up in the North for the total abolition of slavery. Some of its advocates were not prepared to compromise on this issue and would not be moderate about it.

Abraham Lincoln was opposed to slavery. In 1860 when he was elected President of the United States, his election was taken as a signal by the South to break away. State after State seceded from the Union. Lincoln made every effort to win over the South and prevent this break-up. He gave them all manner of assurances about allowing slavery to go on. He even said that he was prepared to make it a part of the constitution which would give it permanence in States where it existed. In fact, he was prepared to go to almost any length, but one thing he would not agree to and that was the break-up of the Union. He denied absolutely the right of any State to withdraw from the Union.

Lincoln's attempts to avoid civil war, however, failed. The South had decided to break away. Eleven states did so, while some other border states also sympathised with them. The seceding states called themselves Confederate States and elected their own President. Thus in April, 1861, civil war was forced upon Lincoln. It lasted for four weary years, during

which many a brother fought against a brother and many a friend against a friend. The South was instigated and even helped by some of the big European powers. The victory of the North in the end was the result largely of Lincoln's cool determination and perseverence in spite of disappointments and disorder. He was out not only to win but to do so with as little ill will as possible, so that the Union for which he was fighting might be a real union of hearts and not a forced one. So having won the war, he set out to be generous to the defeated South. But within a few days of final victory he was shot dead by one of his own countrymen.

The War of 1861 to 1865 is known as a war for the abolition of slavery. Lincoln's primary concern, however, was not the emancipation of slaves, but the saving of the nation as a whole. "My paramount object in this struggle," wrote Lincoln to the editor of the New York Tribune, is to save the Union, and is not either to save or to destroy slavery. If I could save the Union without freeing any slaves, I would do it; and if I could save it by freeing all the slaves, I would do it; and if I could save it by freeing some and leaving others alone, I would also do that. What I do about slavery and the coloured race, I do because I believe, it helps to save the Union; and what I forbear, I forbear because I do not believe it would help to save the Union." This was the greatest service Lincoln did to his country.

The great American poet, Walt Whitman said of Lincoln:

> "This dust was once the man,
>
> Gentle, plain, just and resolute, under whose cautious hand,

Against the foulest crime in history known, in
any land or age
Was saved the Union of these States."

It was his shining nationalism, burning with patriotic fervour that makes Lincoln stand out as the first American Frederick T. Hill in his "Lincoln—Emancipator of the Nation" asserts that throughout the Civil War, Lincoln was "the only statesman who thought nationally, ... the only leader of public opinion that invariably stated all disrupting problems which confronted him in the terms of the nation, concentrated his attention on its welfare and let that dominate every other issue."

It needs no argument to show that a very large part of the greatness of the United States has been built upon the fact of free economic and social intercourse between all the people of the forty-eight states.

It is worthy of note that in their early youth Washington and Lincoln were both land surveyors. They both had elementary educational training for that occupation. Thus while two land surveyors laid the foundation of the United States of to-day, a long line of devoted engineers, in subsequent years, played an important part in building up the enormous resources of the country.

IV

ENGINEER'S PART

Modern engineering has produced changes of great importance all over the world. There could, however, be no better instance of engineering as a factor in nation or empire-building than that of America.

North America in a very special way may be considered the child of modern engineering. The growth of land, sea and air transport during the last half century, and, above all, the use of the big machine have made it possible to build from a few scattered colonies, one of the foremost industrial nations of the world.

George Washington and Abraham Lincoln prepared the necessary ground. The engineer must be credited with a contribution that has been one of the most determining factors in opening up the vast continent and in the utilisation of the natural resources of the country.

Even after the Civil War and only about 50 years ago, the horse still furnished the motive power for the street cars in the towns. Homes throughout the country were illuminated by the coal oil lamp. Canning was done at home. The livery stable flourished and the horse and buggy were highway transportation *de luxe*. Highways were not surfaced and side walks were of wood. The high-wheeled bicycle, the forerunner of the pneumatic tyred, was a proud vehicle for both touring and racing. The business and professional man wore a boiled shirt and a black string tie.

The business woman had not yet arrived. Manual labour earned less than one dollar a day. A letter press was standard office equipment. Correspondence was by hand, the typewriter a new comer. Hydro-electric power was unknown. There was no wireless telegraphy or telephony ; no gramophones, Kodaks, motion pictures, automobiles, radios, television, aero-planes, submarines ; no adding machines, mechanical accounting or teletype ; no gas engine, no roller bearings, individual machine drives, high speed steel, arc welding, acid resisting alloys or synthetic resins ; no cellophane, no rayon. There were no electric household appliances, no electric refrigerators, vacuum cleaners, toasters, ironers, hot water heaters, no air conditioning, no oil burners, no robots, no electrical eyes. Sixty hours was the minimum week's work.

The engineer levelled the hills, filled valleys, drained marshes, built roads and canals and saved mascular energy by utilizing coal, oil and water to generate power. "He has made the ether carry his messages; he can hear from afar the cry of the ship in distress upon the sea ; he can make Niagara drive mills and illumine cities, hundred of miles from the falls." He converted the most unfavourable and niggardly conditions into the plaint instruments of progress. He has modified the effects of unfavourable climate.

What is the result ? After a painstaking enquiry into price indexes and statistics of wages, Dr. Edwin G. Nourse says "Between 1870 and 1936 the number of working hours per week was cut down by one third; and yet the quantity of goods that could be purchased by the amount of money that a wage earner would receive in a week was multiplied more than two and a half times."

This was achieved by industrial development. Industry was no doubt fathered by courageous initiative from the capitalists and the industrialists. The contribution of the engineering profession, however, to the expansion of industry was not only outstanding but revolutionary.

In an article "Fifty Years of Industrial and Manufacturing Development," published in the Semi-centennial of the Engineering Journal, June, 1937, Fraser S. Keith has detailed at length the engineer's contribution to industry during the past 50 years.

The most important achievements have been the steam engine and the diesel engine.

In 1887 most factories used steam engines, the power being transmitted by shafting and belting, gearing or rope drives.

Fuel oil appeared in competition with coal. Designed to use by-products of the manufacture of kerosene, the fore-runner of the present gasoline appeared in the eighties and weighed about 1,000 lbs. per horse-power up to a three horse-power capacity. The present day cost of a three horse-power engine is about $60 ; in 1887 it was about $2,000.

Refinement of the internal combustion engine commenced at the turn of the century. It has revolutionised transportation combined with electricity, it powers the automobile, and has made possible the science of aviation.

The first diesel engine appeared in the United States in 1898. Since 1930 refinements of this type of engine have been so great, coupled with its much lower cost of operation, that it now looms as a competitor of the gasoline engine for heavy highway transportation.

It is in the electrical field that the most recent achievements may be claimed. The commercial application of electricity in the industrial field received considerable impetus just before 1890.

The fundamental conception of the magnetic circuits in rotating equipment was not yet clearly understood. The design of modern rotating-field generators was evolved from the early hydro-electric installation at Niagara Falls which utilized this form of construction, excepting that the field coils rotated on the outside of the armature and were supported from the shaft by an umbrella-like structure.

Before the end of the 19th century the generating equipment had assumed much of its present form. Later developments have been towards larger capacities with refinement in the materials, the higher speeds with the advent of the steam turbine. The first alternating generators were of the single phase type and were utilized for supplying current for lighting. The single phase induction motor followed rapidly and enabled the alternating supply of current to be used for motive purposes as well. It was not until the development of the polyphase motor in the early nineties, that much progress had been made in the application of electricity to industrial requirements for motive power. Since that date electrical engineers have designed and constructed motors to meet every conceivable performance. From the minute motor, driving the hands of a synchronous clock to the largest motors on rolling mills and hoists, the engineer has contrived to find a running mate for every job.

One of the earliest applications of electric motive power for traction purposes was in the operation of street railways by direct current. The growth of alternating current power systems, however, and the

improvements in flexibility and control of the induction motor have led to some use of the alternating current for heavy traction on railroads. The development of the mercury as rectifier, with its increased efficiency and lower operating costs, has given new life to direct current systems for heavy traction purposes.

The thermal conversion of surplus power from hydro-electric developments by the electric steam boiler has been undertaken in Canada during the past ten years on a very large scale. Steam is produced by electro-thermal process in the plants of industries requiring large amounts of process steam, thus electricity has beaten coal even in its initial game.

The speed and accuracy obtained by electric control devices is now universally recognized. Practically every industry finds use of one or several of the refinements for automatically regulating or controlling some process in manufacture.

There can be no doubt regarding the material progress made in industry and manufacture in America during recent years. In both the engineer has played the principal part.

In the agricultural field too the engineer's contribution has not been meagre. In the first place agricultural developments followed the railways—the railways made it possible. Not to mention other products of the soil, a large quantity of roses and other cut-flowers are shipped from the Pacific Coast to Atlantic Coast cities in refrigerator cars attached to fast passenger trains. Secondly, the construction of big dams for irrigation purposes has played a very important part in the widening of the agricultural base for the growing population. The Bureau of Reclamation alone, since 1902, has built 134 storage and diversion dams and 20,000 miles of large canals. With the

expenditure of 237 million dollars, it has been responsible for the development of no less than 20 million acres of arid lands in the west. With the projects, which can now be considered feasible, an additional 10 million acres will be brought under irrigation.

The engineer has contributed to a great extent in giving petty conveniences in the home and in travelling. The principal trains in the United States are all air-conditioned. In the winter the outside temperature may fall to many degrees below freezing point. In the summer the shade temperature may exceed 110°F. But in the principal trains, the coach temperature is maintained at 65°F in summer and 60°F in winter. Throughout our tour in the middle of the hot weather of 1939 we found these coaches entirely free from dust or noise with a free circulation of fresh air. One could have a sound sleep at night and get up fully refreshed for the day's work.

The United States has about 31 per cent of the total railway mileage in the world—245,752 out of 789,000 miles of line, although the land area and population of the States are less than 6 per cent of the world's total.

At one time it took months for a slow moving animal-drawn caravan to make the journey from the Mississippi River to the West Coast. Then followed the railroad trams, which cut the time of travel across the country to two weeks, and more recently to two days and a half. Aeroplanes have reduced this time to only 15 hours.

The American "Clippers" cover the distance of 9,000 miles from San Francisco to Hong Kong in six days, the flying period being only 60 hours.

The engineer is, occasionally, blamed for many of

the present ills of the modern society. He is accused of being so much engrossed in his professional work that he has neglected the duties of citizenship. He is accused of being far more interested in mathematical and physical phenomena than in cultural, social and human problems of the world about him. His creations have done much to create a social constitution that needs a remedy and towards which the engineer has a responsibility. This, however, is too big a question to discuss here.

V

THE TWO WORLD FAIRS

If a visitor wished to get an idea of America's richness in a few days, he could do nothing better than pay a visit to the two world fairs going on simultaneously at the two extreme ends of the great American continent. Each one vied with the other in magnitude as well as magnificence. The New York Fair covered an area of 1,216 acres and represented an expenditure of $155,000,000. The Treasure Island on which stands the Golden Gate of International Exposition of San Francisco has an area of 280 acres, and represented an expenditure of $50,000,000.

If the theme of the New York's World Fair was "what the world may be like in years to come," the theme of San Francisco Exhibition was "the representation of past and present civilizations of the lands adjacent to the Pacific."

If the promoters of the New York Fair called it the outstanding event of the 20th century, the admirers of the San Francisco Exposition claimed it to be a national attraction competing on even terms, if not better, with the New York venture. If the New York effort was the largest and the most costly in history, the San Francisco one was, perhaps, the most colourful.

If sixty nations sent their goods for exhibition at New York, more than 40 nations and 11 of the Western States of America were represented by pavilions on the San Francisco Exposition. Both the

fairs were an eloquent tribute to the men and women, who planned, built and operated them. The magnitude and the magnificence of these fairs resulted from the combined efforts of many minds and countless hands, all deserving of commendation.

It required not only the most exacting co-ordination and closest co-operation among the many architects, engineers, constructors, landscapers and others but also the creation of new structural forms and new types of lighting equipment.

The two Fairs were also gigantic financial undertakings. The entire world's fair held at Paris three years ago could be placed in the Amusement Area alone of the 1939 New York Exhibition. The Century of Progress at Chicago in 1932 cost only $33,000,000 and the erection of the Panama Pacific fair at San Francisco in 1915 not more than $50,000,000. In other places in the world, fairs have been directly subsidized by their respective governments, but American fairs are primarily the result of private enterprise ; they do not enjoy the boon of direct governmental subsidy.

Out of $ 155,000,000 invested in the New York Fair, $26,700,000 were provided by the City of New York, $6,200,000 by the State of New York, $3,000,000 by the Federal Government, $30,000,000 by the various foreign Governments which had pavilions on the grounds and $42,000,000 by the Fair Corporation. The remainder of the investment was made by private exhibitors.

The fair was operated as a non-profit organization. All the profits went to the City of New York, New York State and to educational and charitable institutions.

It had been estimated by experts familiar with the velocity of money that the sums expended in the New York Fair would result in the circulation of more than one billion dollars for additional services and supplies. The number of visitors that passed through the gates of the Treasure Island from 1st to 18th July was more than one million. Total gross receipts for the same period amounted to about $1,500,000. It was expected that 16 million people would visit the New York Fair up to the time of its closing.

Why all this huge expenditure? Did the Fair authorities and the talents and genius of many men and women work continuously for a period of 3 years simply to give "graphic demonstration to the dream of a better 'World of To-morrow';" Were they meant merely to be pieces of art to provide food for the æsthetic yearning of man or simple amusement to the visitors of these places? Were they organized merely as educational enterprises? The Chicago World's Fair of 1893 claims that it produced a Henry Ford. In the crowded and exciting fair a 30 year old mechanic forgot everything else as he studied a small gasoline engine mounted on a fire hosecart. He had been working a long time to develop just such a power plant. Here was proof that his plans were sound. He hurried home to his little shop in Detroit and by 1896 produced a horseless carriage that would really run.

Out of that early Fair came a Ford conviction, a conviction that if you show the most advanced ideas to the minds of other men, progress is inevitable and everybody benefits. That is why the Ford Motor Co. has been a big exhibitor in every important fair since its founding. Henry Ford believes that all these exhibits help eager young people to gain inspiration and knowledge for inventions that will be as important

to the world of to-morrow, as mass motor car production has been to the world of to-day.

An electrical engineer claimed that the fair provided the stimulus that brought from the laboratories into commercial production some of the most significant developments ever made in the field of artificial illumination.

From humanity's point of view the Fairs served another very useful purpose. Grover A. Whalen, President of the New York World's Fair in his welcome to the world stated : "We convey to you the picture of the interdependence of man on man, class on class, nation on nation. We tell you of immediate necessity of enlightened and harmonious co-operation to preserve and save the best of our modern civilization. We seek to achieve orderly progress in a world of peace ; and toward this end, many competent critics have already noted marked progress.

"This is your fair, built for you and dedicated to you. You will find it a never ceasing source of wonder. We feel that it will delight you and instruct you. But in the midst of all the colour and rythm, music and festivity, you cannot fail to receive that more serious message ; how you and I and all of us can actively contribute, both for ourselves and for our communities, toward that better 'World of To-morrow' to which we all look forward."

If the world fairs can achieve the object propounded by the founder of the New York Fair the expenditure would be nothing as compared to the wasteful and damaging expenditure on modern warfare. Experts have estimated that the cost of present war is about one million dollars per minute.

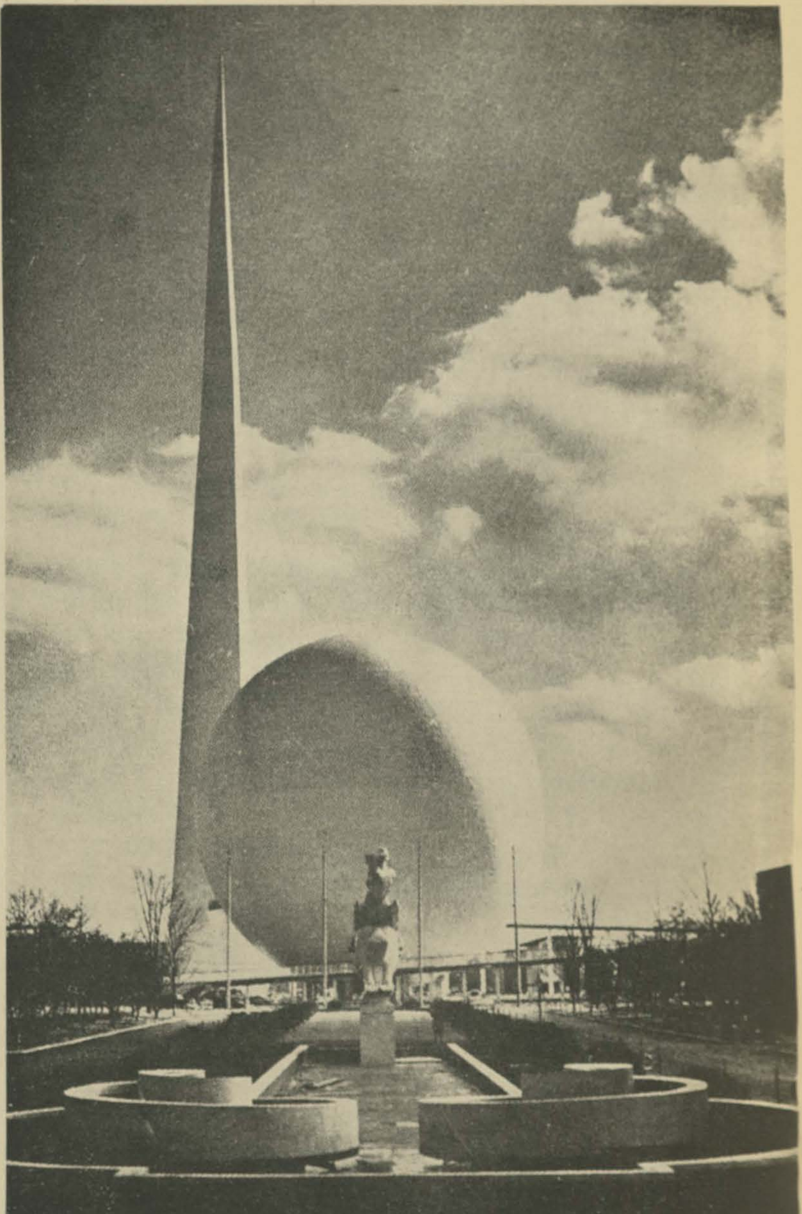
The New York World Fair was a stimulating review of the world of to-day and an effective review

of the world of to-morrow. People who died 50 years ago, had they lived until to-day, would have gasped in wonder at the achievements of this period due to the genius of man. Should we be privileged to live 50 years from now, we too, would undoubtedly gasp in wonder at the achievements of that time. There was enough to show in the New York Fair to convince even a casual observer that the World of To-morrow is going to be a very different kind of world from the one, we have been accustomed to at present.

The New York's Fair took three years to build. The grounds were created on a salt-marsh, used for 50 years by the great City of New York as a dumping ground for rubbish and ashes.

Exhibit area comprising 1,000 acres contained more than 200 structures, most of which were windowless exhibit buildings. A zoning and colour scheme adopted prior to construction insured architectural unity, and harmony of plan, design and treatment throughout the whole area. To provide the necessary focal point for technical co-ordination, a test laboratory was established on the Fair grounds in the earliest stages of its development. This served as a medium of contact for the many different interested agencies.

Seven classified zones (foods, governmental, distribution, communication, transportation, community interests, and business administration) were distributed around the Theme Centre, with streets radiating from the centre and crossed by circumferential avenues. The colour scheme, also zoned, but on a basis of æsthetic values rather than occupancy zoning, was co-ordinated with the physical layout. Starting with white at the Theme Centre, colour treatments of red, blue or gold radiated outward with progressively more saturated hues. Adjoining hues blended



The Trylon and the Globe in the New York World Fair.

circumferentially along the avenues. By virtue of the proper selection of accents and relief tones, each structure presented a colour scheme of interest in itself as well as appropriate to the general picture. The illumination was so fitted into this scheme as to maintain the basic pattern by night as well as by day, but with a new and added interest and charm after sunset.

From the engineering point of view many problems were met in the building of the fair, that were never before encountered. The engineers gave a hundred new and valid answers to a hundred major and perplexing questions. They created things which many said were fantastic and others impossible. The fair was a proof that nothing could defeat the combination of experience and courage.

One of the fair's most daring engineering endeavours was the construction of the Theme buildings, the Trylon and the Perisphere. Driven through ash and silt to firm ground, more than 1,000 timber piles supported these structures, whose combined weight was 5,000 tons. Eight steel columns held the perisphere on a massive concrete ring, which in turn rested on 600 piles. The Trylon was supported by concrete anchorages which also were founded on piles.

The gleaming white of the 700 ft. Trylon and the hollow globe or perisphere, 200 ft. in diameter, dominated the centre of the Exposition.

A set of impressive statues depicted the Four Freedoms of America. Freedom of the Press depicted the youthful figure of a woman, partially nude, to denote the "Unadorned Truth," writing on a never ending scroll. At the base of the statue, a printer, using a press of Benjamin Franklin's day was putting her writings into printed form.

Freedom of Speech was the figure of a man, talking as though into a microphone.

Freedom of Religion was a female figure with her face raised worshipfully toward the sky and a prayer book clasped in her hand. On the base, various types of religious structures indicated, that freedom of worship in the United States was not confined to any one creed or sect.

The figure of Freedom of Assembly, which combined the thoughts of assembly and the right of petition, was a woman holding her hands as though she were using them as a scale, balancing right and wrong. On her feet was a crushed serpent and below, on the base, a typical public gathering being addressed by a man.

Another of the impressive expositions was a complete cycle of Ford production on a tremendous turn-table, with striking lighting and moving figures.

The "World of To-morrow" was a grand experience indeed.

The Treasure Island on which the San Francisco Exhibition had been built is the largest artificial island in the world. It is 5,520 ft. long and 3,400 ft. wide and cost $3,719,800. Ten thousand piles were driven to rock bottom as firm foundation for Exposition buildings. Eleven dredgers worked for 18½ months to produce this island with 20 million c.ft. of sand. The causeway linking the Treasure Island to the bridge is 900 ft. long and 110 ft. wide. The Golden Gate Bridge is the longest, and the highest single steel suspension span bridge in the world. It has six autolanes 60 ft. wide with two side walks 10½ ft. each spanning a mile wide entrance to the harbour. Its total length from tip to tip of approaches is 7 miles and the total cost

came to $35,000,000. The length of main span is 4,200ft., longest in the world by 700ft., next longest being George Washington Bridge, New York. Clearance over high water is 220ft., height of deck above water at centre is 266ft. Side spans are 1,125ft. Its construction was started in 1933 and the bridge was opened to traffic in 1937.

At the termination of the Exposition, temporary buildings will be removed and the island supplied with run-ways and landscaping for use as Grand Central Air Depôt.

The artificial island with numerous pavilions erected on it presented the appearance of a walled city. The exhibition buildings radiated from the Court of Pacifica, containing a statue of Pacifica, 80feet high, and the Foundation of Western Waters.

The night lighting at the San Francisco Exposition was most attractive. At night, skilful flood lighting and colours transformed the place into a fairy like city. Hidden in troughs, clustered in tree baskets, and buried under shrubs were 10,000 coloured flood lights including 2,400 pink, blue, gold and green fluorescent tubes, 130 search-lights, and 300 ultra violet or "*black light*" lamps. Those were the lights that produced the startling effect of coloured masses and patterns on Treasure Island.

Light was graded in intensity, from the base buildings to the top, to accentuate architectural setbacks.

Fountains were lighted in many colours. In the Court of Pacifica, a thyratrone, behind the metal Persian prayer curtain, rotated colour masses from dark blue to apricot. Mounted on Yerba Buena Island were 24 army-size search-lights forming an overhead

scintillator of colour. These search-lights were visible for 100 miles.

It was estimated that during the 40 weeks of the Fair, 40 million kilowatt hours of electricity would be consumed in producing this night picture painted in light.

Only two countries were conspicuous by their absence in both the World Fairs, Germany and India.

I must not forget to mention another world fair which was taking place at Cleveland.

It was the world's biggest poultry fair backed by $100,000 poultry subsidy.

To the cackle of 10,000 assorted fowl, delegates from 45 foreign nations and poultry financiers from 48 States began a ten day chicken festival. Not less than 150,000 Congress tickets were sold to poultry raisers four months before the opening. By the fourth day, attendance was 110,000; 500,000 poultry folks were expected in Cleveland before the week end. The importance of this convention of the year must not be under-estimated: United States has about 375 million hens which produce an average of 36 billion eggs a year (less than an egg a day for each inhabitant). In 1938 U. S. farmers took in 990 million dollars gross income from chicken and eggs.

VI

EVERYDAY LIFE IN AMERICA

Writing in her column "My Day" on 17th August, 1939, Eleanor Roosevelt, the first lady of America wrote, "I suppose I had better make a confession. I was stopped by a highway patrol officer yesterday. My boys have always said that it would give them great satisfaction, if I were arrested and I think yesterday I came very near receiving more than a gentle reprimand which was given to me. I had been talking and apparently not watching my speedometre, so I was firmly convinced that I had never gone over 45, and the patrol officer quite as firmly told me I was going 60, and that 50 was 'tops' for a rainy season on those roads. I was sent on my way, much chastened and more careful, I think, by a very polite but firm gentleman."

This instance is typical of democracy in everyday life in America.

On several occasions during our visit to works we had no time to return to the city or the hotel and had our lunch in the mess maintained by the contractor for workmen. On some of the big works about 3,000 men could be served at one time. In these messes which were run on cafeteria system, the engineer in charge, the contractor's manager and the two of us sat along with the workmen to have our lunch. Each of us, of course, paid his own bill.

A driver who was taking us round on the Grand Coulee Dam told us that once he was driving the Secretary of the Interior (equivalent to Minister in the

Punjab) during his visit. On his return from inspection the Secretary of the Interior told the driver that he would like to call on his wife. When he was taken to the driver's residence he had no hesitation to partake of whatever was ready for the meal at the time.

There is a corresponding absence of formalities in official and semi-official correspondence. The stereotyped form of beginning a letter with "I have the honour" and ending it with "I have the honour to be, Sir, Your most obedient servant," were conspicuous by their entire absence. Many times even "Mr." is not added in informal letters.

Some of the high officials in Roosevelt's cabinet were living an ideally simple life. We were, in particular, informed by a friend how Harry Hopkins, who before he became the Secretary for Commerce, had entire charge of the government relief works and who had the management of billions of dollars, lived in the most modest quarters. He occupied an office which was down right Spartan and in which one would find neither leather-covered furniture nor paintings nor wainscoting. When he travelled on duty, the local officials, of course, arranged for him to stay at the most expensive hotels and received him with costly bouquets of flowers in huge suites of room, in the hope of putting him in a mood which may mean a million or two for their state or city. All of this meant nothing to this man.

The President himself lives in a very simple style. More has been said about him in another chapter.

Everybody knows the value of his vote. I think it was a taxi-cab driver, who talking of the importance of his own vote pointed out that the President of the United States in 1876 was elected by one vote ; that California joined the Union by one vote ; that Cromwell got victory by one vote and Charles I was sent to the

block. I still remember the terse short verse he recited to show his interest in world politics :

"De Valera's green shirts
back against the wall
Mussolini's black shirts
riding for a fall
Hitler's brown shirts
lording over all
Thank God for Gandhi
with no shirt at all"

Every American talks with pride of the "Bill of Human Rights," and hopes to be a President of the United States some day. He reminds a foreign visitor "Everything is possible in this Free America."

Newspapers are an essential part of American daily life. The Times Square in New York displaying latest news in big letters, electrically lit and revolving round the building, appealed to me as a most impressive sight at night. Americans are great consumers of newspapers. There are no less than 11,000 weekly and semi-weekly newspapers, and 2,500 daily papers published in the United States. The daily circulation of some of these papers goes up to a million. The paid circulation of the Denver Post, in 1939, a provincial paper, was 150,000 copies daily. The Sunday edition of these papers is very voluminous. Notwithstanding the volume, the prices are very moderate as the great newspapers are mostly dependent on advertisements. This tends to a certain extent to bring the newspapers under the influence of high finance and big business which pays for publicity. Whenever an editorial contradicts their views, the captains of industry can easily exercise a little pressure, "Your editorials are not up to our standards," they write, and the editor realising, what he is up against, gives in.

The American Press, however, does not spare any effort to get the correct news. America's papers and news-agencies send reporters out to other countries, at great expense, to find out the truth. Many of the big American newspapers maintain their own foreign News Service at an enormous outlay of money.

How does an average housewife and her husband spend the 24 hours of the day in America? This would give a good picture of everyday life in that country.

A professor of Harvard University arranged for about a hundred men and women to submit their detailed daily reports on how they spent their minutes and hours during a four-week period. Each member of the group averaged 8 hours and 24 minutes sleep per day, devoted 206·7 minutes to bread-winning activities and 89·7 minutes to munching and crunching meals, spent 83·5 minutes shuttling back and forth between home and other destinations, and lavished 84·7 minutes on household duties.

It took them 76 minutes a day to make sure they would look their best, 68 minutes to stroll about, 51·7 minutes to read the things they could find time for, 30·8 minutes to exercise their vocal chords in conversation, 26·3 minutes to hear their favourite programmes plucked from the ether, 21·7 minutes to watch Hollywood heroes and heroines, and 21 minutes to visit the neighbours and the folks. 18·2 minutes lolled away in restful, do nothing ease. This leaves less than 3 hours for extra odd things.

The ladies in the group averaged 29 minutes more sleep than their husbands and boy friends got. Both sexes found Sunday an excellent day to ignore the alarm clock and get some extra shut-eye.

The 206·7 minutes per day credited to economic employment sounds fairly low, but those of the group, who had jobs averaged five and a half hours work a day. In this average came some of those who had part-time jobs. Also, minutes and hours paid for by the boss but actually devoted to smoking and chatting were listed under other items.

The balance of less than 3 hours left of the average day is demanded by a host of activities and time killers. Playing and shopping surge forward to snatch more than half an hour of the remaining time. Playing with the dog, swimming and other forms of recreation whizzed away 16·4 minutes. Participation in organized outdoor sports took 4·6 minutes, while 6 minutes and 36 seconds were allowed for watching football frays, tennis matches, baseball games and other contests and spectacles. Fifty-four seconds were allotted to playing with children.

Shopping swallowed 16 minutes daily, and 22 per cent of the group went to the market. The participating women shoppers took 76·2 minutes a day to make their purchases, the men 65·5 minutes. The principal shopping day was Saturday, when Mrs. Average spent 104·3 minutes examining and selecting food-stuffs and wares.

On an average 9·3 minutes a day were whiled away playing bridge, and other card games. Sunday was the favourite card-playing day. Religious activities ruled 8·3 minutes of the average day, allowing just about enough time, if hoarded through the week, to allow a Sunday church visit.

The groups' average for hugging, kissing and sighing came to only two minutes a day. Dancing occupied 6·6 minutes per average day. Mailing letters, going

to the bank, paying gas and electric bills and similar errands took away 6·3 minutes.

Five minutes a day went into entertaining for relatives and friends. Letter writing disposed of 2·7 minutes. Correspondence was answered mainly on Saturdays and Sundays. Telephonic conversations took 54 seconds. Four minutes were devoted to attending lectures. Social functions, such as lodge and club meetings, occupied 3·1 minutes.

Mr. Average devoted 2·2 minutes a day to caring for his garden, but only 36 seconds to other hobbies.

They segregated 2·1 minutes per day for picnic, but stored the time up because each picnic required almost five and a half hours. Another 4·6 minutes a day were spent for quaffing soft drinks, swallowing ice cream and the like. Puffing cigarettes, cigars, and pipes required 1·7 minutes.

Attendance at weddings, funerals, graduation exercises and similar occasions took 42 seconds a day. The group averaged 12 seconds a day on daily exercise.

Thus does an American spend the 24 hours of his day. How does an average American spend his pay? This interesting question was put by us to some of the engineer companions during idle moments.

The average family believes in a budget plan. It is considered essential for sound economic management that the individual should plan his spending in relation to his resources, but discriminate between needs and wants, to develop control in spending and saving; over-saving was considered as dangerous to well being as over-spending. The average family realized that first things must come first—adequate shelter, food and clothing, before automobiles, radio sets and "living up to Jones" who had twice its income.

An average family consists of a father, a mother, a girl and a boy. It has a home consisting of three bed rooms, one bath room, kitchen, dining room, living room and one car garage. The initial cost of such a house may be about $5,000 and the annual rent about $188. Generally a loan is taken from the Federal Home Loan Bank Board to be repaid by instalments in a period of twenty years.

Repairs, taxes, and assessment go up to about $100 a year. Blind screens, curtains, tables, desks, radio, clock, side board, sofas, chairs, rugs, book-shelves, linen, china, kitchen-ware, beds, mattresses, blankets, sheets, an electric iron, a vacuum cleaner, a refrigerator, a washing machine are considered necessary. Their total cost may come up to $2,000; taking the average life as 20 years, this would mean $100 a year.

An average middling family will not be able to afford more than just two dollars a week for extra laundry and cleaning, two dollars a month for gas, two and a half dollars a month for electric current, two dollars a month for a party-line telephone and ten dollars a year for seeds, bulbs, fertilizer, hose, lawn-mower, etc. All household operations come to $276·50.

Under the heading of food, the family would probably consume just one pound a day of grain-things, such as flour, corn meal, rice, marconi, breakfast cereals, and bread. Every member of the family gets one egg a day. Meat and vegetable on the same modest scale. The two adults get one pint of milk a day each. The children get a quart a day. Out of this the family gets all its cream and butter for cooking.

The actual cost under clothing averages $345 for the year.

Under the head of personal care may be taken one 25 cent tooth-brush a year for each member of the family, one 5 cent cake of soap a week for the family wash-bowl, four tubes of 25 cent shaving cream a year for father. Mother may spend $5 on permanent wave a year. She generally spends about a dollar a month for a combined shampoo, hair set and manicure; another $3 a year for lipstick, powder, rouge, nail files, cold cream and perfumes. That will come to about $20 a year for mother; who may be able to hold down daughter to $15 a year for beautification. In practice the daughter would probably spend $20 and the mother would have to be content with $15. The total with slight adjustments for the family under the heading of personal care comes to about $57 a year.

Now medical care. The cheapest form of medical care is by doctors operating as a social group. It may come to about $50 a year per person. This is considered somewhat less than science to-day could usefully do for them if they could afford to buy it.

Next comes transportation. A motor car is necessary and costs the family about $850. It is renewed generally every five years. They do about 6,000 miles a year in the car. That is not much for true Americans. The car is adequately protected by insurance against theft, fire, property damage and personal liability. Adding to this repair charges, the cost of registration fees, the driving license fee and all the other special motor car fees which local governments impose, it costs the family at least $325 a year to own and run the car.

Under recreation, the family may spend $20 annually including games, cinemas, and drinks. This

does not include foreign travel or special expenditure during vacation.

As regards education, the children go to public schools. The family, however, must buy school supplies, daily and Sunday newspapers, a news weekly, a magazine that goes in for fiction and pictures, and another that goes in for thought and argument and about half a dozen books a year. Adding to this the cost of some gramophone records and a few odd paintings, the cost goes up to about $100 a year for educational and cultural up-goings.

Social obligations including stationery and postage and presents to relatives and friends, charities, subscriptions to political parties and other civic improvements and contributions to professional associations take away about $200 a year.

The family has a life insurance policy and a cash savings account. This may come up to $300 a year.

The above budget is for a family with an income of about $3,200 a year,* which is about 20 per cent higher than the average income of an American.

Ordinary food materials and vegetables and fruits are available at the retail shops, practically at the same price as in India. Raw milk costs 12 cents a quart. Petrol costs about 22 cents a U. S. gallon.

It was our good fortune to have been invited to many American homes. Many of these families were in comfortable but not overwealthy circumstances according to American standards. I was greatly impressed not only with the smooth running and comfort of the labour saving homes, but more with the delightful sense of comradeship, a feeling that the

* This is based on the article by Frauzz Eakin and William Hard in Reader's Digest of May, 1940.

the train can get through somehow. The Chinese are extremely punctual, provided you give them plenty of time to do a thing. They always finish a thing on schedule, provided the schedule is long enough."*

Freedom of action and speech is a privilege which every American values as much as life itself. One may hear him talk in the street and in a railway train "I am an American, I can say what I please and write what I please. Freedom to me means not a theoretical ideal but definite practical rights. Freedom means, for example, that if I run a store, I can sell my products to anybody, without a government official telling me what the prices must be. If I am a professor in a university, I do not have to alter science, or daily history as a bureaucrat prescribes. If I own a press, I do not limit my editorial opinions to what an official censor approves. If I am a labourer, I can leave my job when I feel like it for any other job I prefer ; I and my fellow workers can bargain collectively concerning the conditions of my work. If I think taxes are too high, I can vote against those officials who are responsible and there is no limitation upon my inherent American right to criticise anybody anywhere at any time."

Even at the end of a decade fraught with unemployment, Americans would still rather take a win-or-lose chance of a good job than seek security in a low-paid job. When asked "Which would you prefer, a job at a high wage but with a 50—50 chance of getting promoted or fixed, or a steady job earning just enough to get by on, with no prospect for advancement," the majority voiced their choice for the former. Thus they cling to the traditional American self-confidence, faith in opportunity around the corner and a belief that a worthy worker can get a square deal."

---

*Lin Yutang.
†Reader's Digest, May, 1940.

Compared with the average job, a Government job offers pay, working conditions and security that are above standard. Yet these advantages in working for the Government apparently do not offset the appeal of the main chance in private employment. To the question, 'would you prefer the government or private business as an employer?' the answer was only 39·5 per cent for Government employment. However, the poor, the negroes, the unemployed and, by small margins, the farm and factory workers preferred a Government job.

It was remarkable to note that despite the buffeting of the past decade and the siren songs of Utopia-minded radicals, the most universal American traits still remain :

"A rejection of the idea that classes, proletarain or plutocratic, exist among them.

"A sweeping confidence that for the individual the present is better than the past, that the future will be better than the present.

"A greater devotion to intangible values as a heritage to be passed on to posterity."*

---

†Reader's Digest, May, 1940.

VII

AMERICAN ENGLISH

One has not to be in America for more than a few days to discover that the language spoken by Americans is hardly what we call "idiomatic" English. There is a distinct difference in vocabulary and pronunciation. In fact, some of the words convey distinctly American meaning. When you "thank" a porter at an American railway station or a waiter in an American hotel, he would reply "You're welcome". The use of words, such as "why," how's that "and sure" in everyday conversation has a distinctly American meaning.

Notices and advertisements, such as "positively no smoking", "positively no admission", catch the attention. I was amused to see another notice in a lawn "Cars standing here are subject to sprinkling." Such notices and advertisements are typically American.

And if one were to take slang into consideration, then the language spoken by the Americans is entirely different from English. Certain words of slang, such as "sissy*" would be untraceable in an English Dictionary. Others carry a meaning which is entirely foreign to the language in England, for example, "Skunk" is used to convey a very undesirable person. In the university language, a "Coed" is a girl student and a "Sophomore" means a second year student. Gangsters have evolved a slang of their own. A "torch" means a gun or revolver. "To be taken for

*means an effeminate boy.

a ride" means to be taken by car and shot by bandits in a forest. To be "on the ice" is to go to jail. A "torpedo" is a man who murders for money. "Hollywood Appendicitis" is a figure of speech, which means that a woman is about to become a mother.

The Englishman complains about the "nasal twang" of Americans. A professor of English in the University of London, in criticising the American English, said "Americans speak like a herd of Gadarene Swine" and that "from all ends of the earth, fresh barbarisms were pouring into the country." The American retorts that the English gutteral is unpleasant and that the English speech is not infrequently unintelligible. He will never admit that he speaks degenerate English. He, on the other hand, claims that he speaks Statish language or American language. Englishmen may detest American English, but the Americans emphasize that the King's English is all right among his subjects, but it plays little part in America's life and manners.

As early as 1789, Noah Webster argued that time for regarding English usage and submitting to English authority had already passed. "Numerous local causes," he foresaw, "such as a new country, new associations of people, new combinations of ideas in arts and sciences and some intercourse with tribes, wholly unknown in Europe, will introduce new words into American tongue. These causes will produce, in course of time, a language in North America as different from the future language of England, as the modern Dutch, Danish and Swedish are from the German, or from one another."

Revolt amongst the American literary men against King's English continues. Mr. Rupert Hughes in an article in Harper's Magazine wrote, "Let us sign a

declaration of literary independence and formally begin to write, not British, but United Statish. . . . . Let us study it in its splendid efflorescence, be proud of it and true to it. Let us put off the livery, cease to be the butlers of another people's language and try to be the masters and the creators of our own."

American language is not an artificial product. It is the living expression of the mind and spirit of American people. It is ever changing. What may be right to-day may be wrong to-morrow. Americans declare that only pedants will try to restrict a living language with the iron rules of impersonal grammarians.

Long ago, a navy department official got some little pink slips marked "EXPEDITE", so that pressing documents were not unduly delayed in the office. In a short time the people got used to this immediate attention mark. The slip was changed to "URGENT". Its novelty also wore off and a more stimulating mark was called for. Thus "URGENT" was changed into "RUSH". Then came the inevitable time when documents marked "RUSH" were discovered days later buried in some body's desk, and the high command realized that a new word again called for. Pressing papers are now marked "'FRANTIC".

A set of 30 volumes of "Encyclopædia American" was recently published as a special edition on the occasion of the New York World's Fair, 1939.

The English taught in the class room in the States no doubt is chiefly derived from British literary traditions, but outside the class room doors, students have lapsed into their own native American, "which has a vocabulary as broad as the country, as exact and complex as U. S. technology from which it derives many terms." To close the breach between class room English and spoken American English, some textbooks

have been prepared only recently. Four high school teachers have published some graduated textbooks on American English.* Main thesis of these books is that there are three kinds of American English, each acceptable in its place. They illustrate this concept by the following variations on the theme :

" Mother is not feeling well to-day.

(1) Dignified American English for great occasions : " mother is unwell and has retired ".

(2) Sack-suit American English : " mother is sick and has gone to bed ".

(3) Football-field American English : " mother is on the blink and has hit the hay ".

Another work† on the same subject which appeared recently lays down that " so far as the language furthers the writer's intended effect, it is good ; so far as it fails to further that effect, it is bad, no matter how ' correct it may be. ' "

There is an equally great tendency to simplify spellings. " Honour " is spelt as " Honor ". One wonders why such an undue emphasis is laid in India by the Indians on the absolutely English pronunciation of the English language. There can, however, be no question about the utility of being capable of understanding English and making oneself understood to others in this language. Practically, in every country there will be found people who understand English. No book of importance published in any language remains untranslated in English. During our trip round the world we found our knowledge of the English language as a great boon.

---

*Lippincott.

†An Index to English by Professor Porter G. Perrin.

VIII

AMERICAN FOOD

Dr. Victor G. Heiser who is dubbed as "Personal physician of the world" and claims to have saved two million lives in his career is now getting down to his latest battle, that is, to place America on a sensible diet.

Diet, Dr. Heiser insists with all the vehemence at his command, is one of the fundamental keys to human health. It is the spring-board to a better, longer lived, disease-free race of the future. By means of diet, he asserts, scores of diseases, infectious as well functional, can be prevented or completely eliminated.

"If I had my way," he told the press interviewers,* "I would go through every medicine cabinet in every home in the United States and toss out half the medicines we use".

"We need not be as sick as we are. We need not die as soon as we do. We suffer needless headaches. We suffer from infections we should not have caught, from pains and aches we should not have known. We suffer needlessly in many instances, from a host of diseases, ranging from enlarged adenoids and tonsils to gastric ulcer, arthritis, gallstones, Bright's disease, various varieties of cancer and cardiac ailments, anæmia, eye inflammations, blindness, bladder ailments, gout, insomnia, nervous debility." All this, he says, because we eat incorrectly, eat the wrong foods and eat too much.

He bases his conclusions mainly on diet used in India and the experiments done with rats by Sir Robert

*Seattle Post Intelligencer, Sunday, August 20, 1939.

McCarrison, pointing out that since the rat lives, at a proportionate rate, 25 times as rapidly as man, one year's observation of a rat's reaction to food and disease is comparable to observing a man similarly for 25 years.

Dr. Heiser is of the definite opinion that "Evidence shows a close association between the importance of diet in the preservation of healthy cells and tissues, with consequent normal function. The rat experiments by McCarrison show that no disease whatever appeared among rats correctly fed and that apparently many of the usual diseases that are encountered in a doctor's office or ordinary hospital clinics could be induced in healthy rats by improper feeding".

According to Dr. Heiser, the basic food substances needed by man are to be found in milk, eggs, butter, fruit juices, bread, vegetables, especially leafy variety and certain fats.

"There is no substitute for milk, and none for butter. The first is essential ; not only is it a perfect food, but it assists the body in repairing damage caused by the lack of other food substances. Butter is an animal fat and contains vitamin A.

"Green vegetables are important, because green leaves have heavy deposits of inorganic salts necessary to health.

"Anyone can build his diet from these basic foods, substituting, if he wishes, protein for protein, carbohydrate for carbohydrate and so on. That means meat instead of eggs, or potatoes or spaghetti instead of bread."

Dr. Heiser is of the opinion that three meals a day are more than enough for any man. He is also of the opinion that occasional skipping breakfast as well as lunch does wonders. Dr. Heiser himself breakfasts on two steaming hot glasses of water.

"Oh", he says "we are always eating. Eat, eat, eat, wherever we go : Why don't we give our stomachs an eight hour day ? The stomach is a magnificent machine ; it has this over any other machine : it can repair itself. Why, then, in the name of common sense, don't we give it time to do so ?

"Three meals a day are more than enough for any man. Why eat more ? A man treats his automobile with more care than he does his stomach. When the gas tank is full, he doesn't insist upon forcing more fuel into it until it begins to bulge ; he doesn't insist that the carburetor take gasoline at a faster rate than it's built for.

"We do dig our graves with our teeth. You check up and you will discover that most of the ailments treated by physicians can be traced back to over-eating or wrong-eating.

Dr. Heiser's ten diet rules are :—

1. Chew food thoroughly.
2. Eat only sufficient food to keep your weight normal for your height, age and sex.
3. Eat food in its simplest form. Meats are generally better raw than well done ; vegetables lightly cooked are better than those boiled too long.
4. Forget all condiments except salt. Salt is needed by the body, but all other merely stimulate your taste buds so that you are driven to place into your mouth food that your stomach neither wants nor needs.
5. Cut down on desserts. We take more sugar than we need. Whipped cream desserts are excellent breeding places for germs.

6. Drink three pints of milk a day. Milk is an essential food.

7. Don't do without butter. It is an essential food.

8. Eat some green vegetable each day.

9. Don't eat between meals. Give your stomach a rest.

10. If you feel you have any disorder, do not seek to treat yourself. See your doctor.

Now let us see how far America follows Dr. Heiser's advice. In America the general breakfast time is 7.30 in the morning, lunch at 12 noon and dinner between 5.30 and 7.30 in the evening. Even the official dinner of the American Society of Civil Engineers held at San Francisco on July 26, 1939, was timed at 7.00 p.m. No afternoon tea. Supper only when anybody sits late at night.

The morning and the evening meals are in general eaten at home. For lunch, men generally go to cafeteria or lunch clubs. The ownership of automobiles is, however, facilitating husbands coming home to lunch despite the growing size of the city and the increasing remoteness of home from place of work.

Milk is offered with every meal and it is possible to get really good milk practically in every restaurant and in every town. A hiker did 1,364 miles from New York to Kansas city all on a milk diet. During the 84 days it took him to reach Kansas city, he consumed 6 quarts a day. Every week he stopped in at a physician's office for an examination and his condition was declared as fine.

Rock Roy Mack 27, Allumtown Pa, is reported to have said that he has attempted to prove that a man can do strenuous exercise living exclusively on milk.

The importance of education in matters of food has been realized by the American press, and one finds a good long column on food practically in every American weekly.

A few typical menus served in restaurants and in trains may be of interest to the readers. The following is an exact copy of a Luncheon and a Dinner Menu, along with prices :

LUNCHEON

*Number One—Price 85 cents

Choice of

Vegetable Julienne   Grape Juice   Consomme
Hot or Jellied

Fresh fish, Broiled or Fried

Scrambled Eggs with Green Peppers, Bacon

Baked Chicken Pie   Assorted Cold Meats.

American Beef Pot Roast, Mushroom Sauce.

Lyonnaise Potatoes   Fresh Green Vegetable

Pear, Cottage Cheese—French Dressing

Assorted Bread or Hot Muffins

Fresh Berry Pie   Sliced Peaches   Ice Cream
Cheese crock   with cream   Home made Cake

Coffee   Tea   Milk   Buttermilk
Hot or iced

—— :o: ——

Number Two—Price 75 cents

Choice of

Consomme   Grape Juice   Vegetable Julienne

(Fresh Fish-Seasonable, Broiled or Fried
(Scrambled Eggs with Green Peppers, Bacon

* A second portion of any item, served on request, no additional charge.

(Salmis or Duck on Toast En Casserole
(American Beef Pot Roast, Mushroom Sauce
Assorted cold meats.
Lyonnaise Potatoes Fresh Green vegetable
Pear, Cottage Cheese French Dressing
Assorted Bread or Hot Muffins
Fresh Berry Pie with cheese Ice cream and cake
Coffee Tea Milk Buttermilk
Hot or iced

Please write on meal check "Luncheon No. 2", then your choice of fish, entree of meat and dessert and beverage.

——:o:——

Number Three—Price 50 cents

Choice of items listed on No. 2 plate luncheon omitting soup, consomme, dessert and grape juice.

Please write on meal check "Luncheon No. 3", then your choice of fish, entree of meat and beverage.

——:o:——

DINNER

*Number One—Price $1·25
Button Radishes Celery Young Onions
Sunshine Cocktail
Chicken A La Royale Jellied Tomato Bouillon
Fresh seasonable fish—Broiled or Fried
Broiled Double Rib Lamb Chops, Boysen Berry Jelly
Grilled Empire Dinner Steak Fresh Mushrooms
Roast Young Duck, Dressing, Apple Sauce.
Cold Baked Ham, Sliced Breast Chicken, Potato Salad
O'Brien Potatoes
Au Gratin Fresh Green Vegetable

* A second portion of any item, served on request, no additional charge.

G. N. Salad Plate
Spinosa Dressing.
Hot Tea Biscuits — Assorted Cold Bread
Peach Short cake — Ice cream
whipped Cream. — Layer cake
Imported Roquefort Cheese
Toasted Wafers
Coffee — Tea — Milk — Postum
Hot or iced

——:o:——

Number Two—Price 75 cents

Choice of
Chicken A La Royale — Pineapple Juice — Jellied Tomato Bouillon.
Fresh Fish, Broiled or Fried.
Yorkshire Steak, Spanish Sauce, Baked Chicken Pie
Roast Sugar Cured Ham, G. N. Sauce
Cold Roast Lamb with Potato salad, sliced Dills
Baked Potato — Fresh Green Vegetable
G. N. Salad Plate.
Hot Tea Biscuits — Assorted Bread
Fresh Berry Pie — Ice Cream & Cake
Coffee — Tea — Milk — Postum
Hot or iced

Please write on meal check "Plate Dinner No. 2," then your choice of soup, fish or meat, dessert and beverage.

——:o:——

Number Three—Price 50 cents

Choice of items listed on No. 2 plate dinner, omitting soup, consomme. dessert and pineapple juice.

For the little folks

May we suggest Sieved Fresh Seasonable vegetables cooked to order Prune juice, Tomato juice, Orange juice, Cup Custard Jello, each fifteen cents.

——:o:——

One point which I noticed in American menus was that they are written in plain understandable language. In the American Society of Civil Engineers' menu, however, there was a mixture of other languages. The menu served in the formal dinner of the American Society of Civil Engineers may interest Indian engineers.

——:o:——

Menu

Crab Legs Moscovite

Celery Olives

——:o:——

Madrelene Rosa
Cheese straws

——:o:——

Whole Roast Stuffed hicken Nerag
Potato Noisette
Green Beans Au Beuree

———

Golden Gate Salad Gourmet

———

Coupe Montmercy Cassis
Petit Fours

———

Demi Tasse.

——:o:——

Fresh vegetable and fruits are shipped in regularly from long distances, say, from 200 or 300 miles away.

Changes in diet have been facilitated by the development of the modern women's magazines.

A lot of importance is attached to proper serving, "Food can be drab if it is not colourful and picturesque" wrote a food authority, "that is one reason why I like to use orange and grape fruits so much, for instance, with a jellied salad, use a decoration that alternates orange sections with slender slices of avocado pear."

Americans, however, do not worry themselves about dressing for dinner. During our whole stay in America, we were required to dress only once and that on the occasion of the very formal dinner of the Society of Civil Engineers. In everyday social dinners, the most an American might do is to put on a black bow or dark shoes.

In general, the house lady does the cooking herself. A maid might come in for part-time to help in other duties, if it could be afforded. In most of the houses of engineers that we came across, cooking was done by the house lady herself. I know of a steno girl who after working in the office for 8 hours, did all the cooking in the house for her father, a paying guest and herself. This has encouraged standardisation of food in the market, so that time spent in the preparation of food at home is reduced.

Increased use of commercially canned goods means not only less time spent in home cooking but a marked spread in the variety and saving in cost in the food of medium and low income families, throughout the year when fresh grown products are expensive. New mechanical inventions, such as the development of refrigerators and cold storages and the increasingly rapid transportation have encouraged sweeping changes in the kind of food eaten. Cooking is no longer considered as monotonous. In most of the homes, we found a number of labour saving devices, such as,

irons, vacuum cleaners, washing machines, heaters, heating pads, electric refrigerators, electric cooking ranges.

Cafeteria is a distinctive feature of American life. We found it in schools, in all places of workmen and in streets for the use of middle classes. There is a central dining hall, around which are a series of counters with a large variety of food. The food is displayed on these counters. At the entrance is a table stocked with trays, knives and forks. Everyone picks up a tray and a napkin, in which the necessary number of knives, forks, and spoons are wrapped. He goes round collecting on the tray, whatever things look attractive to his appetite. Near the lowest counter at the entrance to the central hall sits an alert young girl, who glances at the tray and in an incredibly short time calculates the total amount one has to pay and hands him a ticket for the amount. He carries the tray on one of the tables and after finishing the meal pays the amount to another young girl, who sits near the cashier's table. In this arrangement the cost of service, a very large item, is saved.

In one respect, the cafeteria plan is similar to the Indian style of serving the meals. All the different items of the meal are collected together in one tray and one does not have to refer now and then to a menu card to know what to expect next. It is superfluous to point out that the food is kept very clean and there is not a single fly anywhere in the cafeteria.

Although the American food shows a distinct tendency in favour of fresh vegetables and milk, as compared to the European food, Dr. Heiser hopes to cut industrial illness and disability in the United States by 50 per cent by further improvement in diet.

He declares emphatically "no doubt heritage is important, but give me power over an individual's diet

long enough, and I am convinced, I can in many instances make that person, a weakling or a magnificent specimen of manhood ; emancipated from disease, or disease ridden, a man capable of producing progeny able to cope with the world, or one whose children will be prey to the first dangerous germ that comes along."

IX

AMERICAN GIRLS

"Lo mejor de America son las muchachas!"

That, roughly translated, means, "what we like best about America are the girls".

This is what a group of students from Cuba declared on the eve of their departure from the States. They liked the freedom and frankness which they said was lacking among Cuban young ladies.

Prince George of Denmark, sixth of the line to the Danish throne, who left Canada on the 14th August, 1939, when interviewed a day before his departure, refusing to discuss the European situation said "but your Canadian and American girls—they are so glamorous".

It is no wonder that American girls leave a lasting impression on foreign visitors. Women in the United States spend approximately 14 million dollars a year on lipsticks alone. In the New York's World Fair the fabulous million dollar exhibit called the Hall of Fashions—where a mere male would feel out of place—can be taken as a definite proof of America's own appreciation of the American girl. Only 40,000 American women make a living from millinery trade, while 115,000 are employed as hair-dressers and manicurists, beauty shops being the nation's 6th largest industry. American women in their desire to improve on nature spend over $700,000 a day in beauty shops and on cosmetics.

With all due regard to the American girl, I would personally give the place of honour to American ice

cream. There is no meal with which ice cream is not offered and no restaurant which is so backward as not to have full arrangements for the preparation of all kinds of ice creams.

No one, however, can remain unimpressed by the independence shown by American girls. They claim absolute freedom from parental control. The old rule of obedience is considered out of date. A young girl studying law wrote the other day in the *Sunday Mirror*. "We do not care any longer for advice. We do not ask any one to accept our ideas of good or evil. As regards myself I am broad-minded in everything and have no use for prudishness. What I want is to solve the problems of life for myself without the older generation blaming or worrying me. That is straight enough. Isn't it ?"

When the 81 year old Governor Dickinson, a life long foe of liquor and "high life" pulled up the young American girls publicly, he had the following response in the press from the modern girl :

"To the Governor of Michigan,

Dear Sir : You sweet old gentleman, I can't tell you how touched I am at your concern for me.

But really you shouldn't worry about me. I'm perfectly able to take care of myself—honest.

As you say I do talk to the men who happen to be wandering around at the same parties—even though there may have been no formal introduction. But even the etiquette authorities tell me I can trust my hostess to that extent.

Sometimes—when the new man is fun, or I need to economize—I even let him take me home. But he always takes me straight home, if I insist. If not, the

most we do is stop somewhere for another drink—and tell each other the stories of our lives.

Even if some men are the big bad wolves you think, I'm still perfectly safe. You keep forgetting I'm no gullible little Red Riding Hood. I just say "No, thanks," or words to that effect—and that, surprising as it may seem to you, is enough.

It's so easy for me—this business of looking out for myself—that it is hard for me to try to explain it to you.

I don't trust men, nor do I distrust them. I just size them up and let them size me up, and there's no resentment on either side.

I'm afraid you exaggerate the evil of my drinking, for I have never been drunk, and never will be.

Often I take milk—and nobody objects. If I am having cocktails, I stop in plenty of time. I've seen older women drink too much, and their eyes look dull, and their skin isn't a pretty colour. That's temperance training enough for me.

Please don't worry about me. I've arrived safely, and am having a wonderful time—The Modern Girl."

Even the juvenile courts admit the right of young girls to a certain measure of absolute freedom. A young girl of 16 was described by her parents as "incorrigible and lazy" and given to staying out nights. The judge decided that the mother must give her a home, provided the girl followed the routine set by the court, which was : Home by 11 p.m., six nights a week; may stay out until 2-30 a.m. one night a week. On a breach of the rule the court said, the girl must go to a juvenile home.

Miss America does not wish to be treated as "clinging vine". She does not care if her boy com-

panion does not doff his hat to her, or grant her all the best pickings as her natural right. She cherishes the status of a "regular pal", "just one of the fellows."

The American girl is adventurous. A woman recently confessed to the police that she masqueraded in male clothes for almost a quarter of a century. She said she had worked as a man for 20 years under the name of James W. Phipps without being suspected. During that time she had been married twice as a man. The disillusioned wife said that "he was always kind to her and was a model husband." Minerva said she had adopted the disguise because it was so much easier for a man to get a job.

The American miss does not lack humour. A girl wishing to embarrass a man, who had jilted her, put up a signboard which read "I want a husband, even a used one".

A flood of light is thrown on the real character of American girls by an actual happening narrated by Louis Adamic in his "My America." With apologies to the author and the publishers I give a full extract :

"In 1931, Margaret was motoring with her father and his wife Alice through Central Europe. They met Maxo Vanka at a party.

She asked for his Zagreb address and said he would hear from her. Maxo's ability to guess people's thoughts did not work in this instance. He imagined the young lady would send him a card from somewhere, or perhaps some art books he had discussed with her, for Americans were reputedly generous. In the next few weeks, when no card nor anything else came, he all but forgot her.

Then, of a sudden, a telegram from Athens : She was Zagreb-bound, and would he please promptly

resign his professorship at the Academy ; she wanted to marry him and they would go to live in Paris or New York, where he would really realize himself as the fine artist he was. Since their first meeting, she had looked up his work scattered through the Balkans and Central Europe, and shed all doubt as to the extent of his talent.

Maxo laughed, for of course it was all a joke. These American women !—An ascetic, an æsthete, a celibate, happy with his art, living in a tiny studio, he had never given marriage a thought. His professor's salary was meagre, but adequate for his modest requirements. He owned the little house on Korchula, where he spent his summers. His fame, true, was nothing like Mestrovich's but not a few people appreciated him as an artist. His students responded to his teaching. His colleagues at the Academy respected him.

But the next thought turned Maxo's mirth into panic. The young American person might be crazy and really come and want to marry him ! He decided to hide. Not finding him, if she came, she would soon depart. And, acquainting one of his Academy colleagues with the ludicrous situation and instructing him to tell her that he had unexpectedly journeyed to Siam and Java, Maxo shuttered his studio-dwelling and disappeared.

This would have been all very well but for the fact that Margaret Stetten, a most untrifling person, had never been more serious about anything in her life than she was now in her idea to make Maxo her husband. She came and upset the Academy, demanding that they produce Professor Vanka, then turned over half of the capital of Croatia, frankly stating her

purpose; and hearing of this in his nearby hiding place, poor chagrined Maxo was obliged to emerge.

He begged her, politely, to go away. He was an artist, a teacher of art, a confirmed bachelor, an eccentric, completely content to live alone, and begging her to forgive his bluntness, he queried "And, anyhow, Miss Stetten, who are you to invade my life in this manner?" She answered "she loved him: in fact if he would pardon her using American slang, she was, "nuts about him," and declared her determination not to depart from Zagreb till he came with her—now what did he think of that?

Trying another tack and being genuinely humble, Maxo asked, "But who am I that you should honour me with your love?" "Never mind about that," returned Margaret, "I know what I'm doing".

He pointed out he was fifteen years older than she, funny looking and skinny; all to no avail. She replied she had eyes to see and knew all about that.

Staying at the Hotel Esplanade, she insisted on seeing him daily. She argued: didn't he realize that he was wasting himself in a provincial city like Zagreb, in a small country like Yugoslavia? Here were no opportunities for real work, unless one was a Mestrovich; and there was room for but one Mestrovich, and he had made his name not in his native land, but in Austria, Italy, France, England and America. . . . "I want to help you," declared Margaret, simply. "In France, in America, especially in America, oh, in America, you will have opportunities galore to really show what you have in you".

Maxo saw her daily, for otherwise she would have resumed upsetting the city, and he hinted he was in truth a most difficult person, a woman-hater, and what

not. Beneath his seeming mildness he was really cruel. Like all artists he was temperamental. His Jesus-like aspect was but a disguise for the devil in him. As a Balkanite, if they married, he might beat her. Margaret laughed. He told her he was an illegitimate child, in fine, a bastard, and she averred, " What do I care! " She was utterly uninterested in his origin; it was all sufficient to her that he lived and painted.

He asked her to pardon his frankness, and remarked that he thought she was crazy, and she laughed again, saying she did not care if she was. Too mâny sane people in the world, anyhow.

Maxo perceived that " crazy " did not dispose of the young woman. She was something elemental, genuine. Although the exact opposite of her on this point, he began to respect her directness and frankness. Somewhere deep inside him, he was flattered that this girl had picked him out of possible dozens of men she knew in New York and elsewhere who probably wanted to marry her.

This went on for weeks; this affair was the talk of Zagreb. Finally with the amused approval of all of Maxo's friends, he succumbed and they were married. They have been living a happy married life and have a child. Despite the fact that he was an illegitimate son of high Austrian nobility and a fantastically nice human being, Margaret knew nothing—yet in another sense, everything—about him. His illegitimacy did not interest her. She loved and accepted him."

The above is typical of the present day American girl and her faith in the soundness of her own judgment. This demand, in the young girls, of too much freedom, is not without reaction from the older people. There are cases in which dads order their daughters to marry. Their point is that no girl at a young age knows

her mind and that she owes it to him to do as he wishes.

A case was reported from Chicago in which a father was charged with cruelty to children after he admitted having wound a chain on his 14 year old daughter's waist and leg to keep her from staying out late at night. The chain had been placed around the girl's waist and extended down her left leg to the ankle where it was wrapped around several times and held in place by a padlock. When the police officer arrived at the scene, he found that the girl's ankle was swollen and bruised.

Even young girls themselves have started to feel that perhaps too much freedom is not in their best interests. An expression to this effect was given by Frances Newton in the August 1939 issue of Mademoiselle. Writing under the caption "Revolt of the Free" she wrote:—

"Dear Mother,

Bill and I are going to be married next month. Contrary to all the surveys of my generation, I have had no pre-marital relations with my husband-to-be and do not intend to have any.

If I'm old enough to be married, I'm old enough to look this whole thing in the face and decide now. . . . . .

If I have a daughter, will she enjoy the freedom you gave me ?

No !

No one of my generation will give her daughter the unbridled license you call Freedom. Our girls will be spared the wastage of emotional anarchy you forced on us.

We've been an unhappy generation, full of fret and fury, without code or tradition ; a restless lot, caught unguided in a ten-year depression.

You wanted freedom, as your mother did.

Freedom of expression, you called it. Freedom from taboos. Freedom to work out your own salvation. Freedom from repression and later, freedom for your daughter to bloom like a rose!

Didn't you know anything about horticulture, Mother? That a perfect rose is the result of careful pruning and never ending guidance in its growing period?

But you feared to prune your daughter's development. At little more than fifteen, you handed her freedom on a silver salver across a cocktail bar. . . . . freedom in the driver's seat of a motor . . . freedom to choose her friends, to talk and drink as she wished, to handle the most difficult emotions before she knew their values.

Psychologists nodded approval, and said, "Give them all the freedom they want. Let them learn of life from life!"

College presidents discoursed on the danger of this freedom but went weakly down to defeat. . . . "Unless we give them freedom, they'll go to other colleges and then where will our income be?"

Editors of great dailies and monthlies warned of this freedom. Writers capitalized on it. Hollywood gloried in it.

Later, there were times when you waved your pretty hands helplessly and protested that you couldn't do a thing with me, that I was headstrong and ungrateful.

What do you think this freedom has brought us?

Do you believe the fantastic surveys of sin among the youth of the land? Do you believe that virginity at marriage is almost unheard of . . . that the nice boys

and men who have taken me out, have all tried to "make" me? Don't be silly, Mother! There have always been fast women. There always will be. But one fast woman doesn't make every young girl a trait and life for the high school girl and boy is not one dreary round of furtive meetings.

Your generation must have had fairly dirty minds, Mother, and you must be a bit naive to believe all the tales you hear.

Have you ever looked at us, Mother?

We're rather a good-looking lot. Most of our figures are those of happy youth, not shrinking cloaks of sin! But I know as well as you, that there cannot be smoke without fire . . . and I know better than you, that most of the smoke is caused by fires being started in unsheltered places. A fire in untilled land sweeps on unrestrained. A lighted match on a macadam road burns for a moment.

Freedom of expression, Mother, means a flame in a forest.

Did you ever consider the stag line, Mother, and the cut-in dance? They're a bad idea. They're responsible for more cases of sensational behaviorism than anything else to-day. The stag line eyes us as we enter, appraises us as we go by. Not all of us are glamour girls. Not all of us are witty. But all are tentative showmen. If one of us can't get by with looks or tongue, she'll get by with "reputation." She's "hot stuff" as you used to call it. She isn't really, but she may become so, just because she has built up her reputation to save her frightened heart from youth's terror . . . lack of popularity with the herd.

What about our drinking?

What about it?

I was just fifteen when I went to my first cocktail party. I felt frightfully daring and grown up. I didn't like gin much. It made me feel queer, but I drank it with the rest of the crowd. I didn't want to be a "sissy." I didn't want to be "different". Well, I wasn't "different". I was stupid and silly and over-bold by turns . . . but I ran with the crowd.

But there was one girl in our crowd who until her debut, had never seen the inside of a night club. We thought her excitement hilariously funny, her request for milk outrageous. We ragged her unmercifully, but she stuck to her guns. She admitted that she was afraid of getting tight. The men in our crowd thought her a knock-out and gave her the rush of the season. She was "quaint"!

And then this "petting and mauling"!

We're supposed to like it. We're supposed to spend half our days and most of our nights in motor cars parked along a lonely road "petting".

Half the boys pet because they're expected to, and petting's easier than talking. Believe me, Mother, half the glamour boys would vanish if they had to make good by entertaining a girl conversationally.

"Reputations" are always connected with two things. Sex and liquor. Both are all right in their place. You taught us about sex through the birds and bees and later through carefully truncated physiology. Through the press we learned about social diseases. God, Mother, but we're bored with sex! It's a good thing we are. We never had to brood upon it, the way you evidently had!

You'd be surprised to learn that a nice girl thinks of sex quite a bit and social diseases, ... but only along the lines of marriage. For in spite of "changing

economic conditions" and "woman's status in the new world," we still prefer marriage to any other career on earth. Not a marriage of good housekeeping only, but a marriage of intelligent living.

We don't like this freedom. It does not become us. It doesn't make us more desirable. It gives us no techniques with which to face life. You must have known the teens were a dangerous period. Why didn't you protect us? Why didn't you give us a frame to work in?

Did you ever make a rule that we must be home at an hour you set, and when we weren't, make it so hot for us that we came home promptly the next time? Not you! I heard you tell Aunt Marion that the younger generation "wouldn't stand for it!"

Rubbish, Mother!

You chose my schools and college. You set the pace for my debut year. You paid the bills. In every other part of your household you see that you are obeyed. Why should I have been allowed the license you refused your maid?

You remember you fired Katie when she stayed out too late motoring with Auntie's chauffeur. You told her you wouldn't have any one in your household who conducted herself in a manner that caused comment.

But it was all right for me when Dick Harding, dissipated but rich, brought me home at five in the morning. Why was it right for me and wrong for the maid? Was it the difference between the chauffeur's and Dick's income? Aren't you a bit inconsistent with this Freedom of Expression?

The freedom you gave us had only two boundaries . . . the amount of gas in the car or money in the boy's pocket. And when the money gave out, we went home.

And when nobody fusses at home whether you're out most of the night or not, well, you just stay out—whether you're drunk with fatigue or gin.

Well, Mother, what do you think of this freedom now ? Not so good, is it ? It's a sentimental pseudo-scientific mixture of the old and new and it doesn't work ; If I have a daughter, will she enjoy the freedom you gave me ?

No.

Let me tell you what I shall do for my daughter.

First from her earliest baby days, I shall teach her to be fastidious, I shall teach her to be sweet and fresh, as well as strong . . . that she is more desirable, more chic, if she is untouchable. Very early, I shall teach her that one is born with sex . . . . that it is something that can never be touched or taken from her, except by her consent.

And I will prepare a frame for her to grow up in—a frame adjustable to her growth. It will enclose rules as hidebound as experience dictates ; it will enclose knowledge and give a technique for enjoyment ; and will teach her the value of "collective security" in a social sense, so she may learn early that when her crowd squirms collectively over a tipsy young man or a vulgar tale, the collective squirm will win !

To-day, state laws govern the foundation, walls and sanitary arrangements for all our buildings. No walls can be put up without steel, flexible enough for storm and stress.

Our daughters will have modern or old fashioned exteriors, but underneath there will be steel. It will be our function to supply that flexible social steel to support the rising building.

We know there's no such thing as unmanageable youth. Undisciplined youth, yes ! But unmanageable, no !

In competitive games boys and girls accept self-discipline as a matter of course. There is no whining. Either they abide by the rules or they don't make the team.

Why shouldn't there be a social code as well as an athletic one ? Either you follow the rules of good manners and decency of word and action or you're put off the team.

The old code was, "It isn't done."

There can be no better slogan for my daughter. She won't be laughed at and called a dud, for the team will be back of her, helping her when she's weak, guiding her when she's backward.

You think I'm arrogant, Mother, don't you ? Cock-sure of success where you have failed. I won't fail, Mother. I know the folly of your freedom.

We are going to bring back the chaperon, Mother. Not to report on wicked ways, not some critical unsympathetic person, as Aunt Marion was to you ; but some one young and gay and experienced enough to know when "enough's enough" . . . that an over-tired boy or girl will make a poor showing in the class room or office the following day . . . that "twosing" is most frequently the result of fatigue, that collective security is best when individual resistance is lowest.

Consider the lad who's being pursued by the over-attentive female : isn't the chaperon a gift from Heaven ? She offers safety. As a last resort, he can even dance or chat with the chaperon. For the girl who fears her own reactions to an ardent swain, there is the sheltering wing of the young matron, who knows and understands

protection. The chaperon will give our girls time for reflection, too. That is part of her value. She is a slowing up process, an oasis from which those who want it may take a fresh view, a fresh grip.

That's one of the barriers we will set up . . . and it will be ingrained in our children while they're young, until they will be as shocked at flagrant behaviorism as Granny would have been in your youth.

Of course they will drink cocktails and dance and hike and play games and do everything I've done. But instead of the gauge of as-long-as-there's-gas-in-the-car or the-money-hangs-out-for-liqour, it will be, " I've got to be home by two," . . . or from the wise young matron who's chaperoning them, " I promised her mother she'd be home by two ".

Supposing the party is perfect and the crowd wants it to go on ? It'll go on ! But there'll be a moment when the same voice will repeat, " Enough's enough. Let's break now ! "

And, Mother, my daughter will learn to carry on an intelligent conversation.

Where some one has the ability to talk, there you will find a group. Collective security again ! You didn't teach us the art of conversation, of provocative discussion. You gave us no protective patter. You gave us Freedom !

Freedom is swell, Mother, for the old and safe. But it is terrifying for the young and vulnerable. We will have to start early, for society for our girls will be what it has always been, what the mothers make it ! We are determined to make it one of gracious customs and good manners.

You will be the grandmothers of our children. It is of your generation that history will say " They gave us

knowledge of sex, of birth control, of social diseases. It is they who brought truth out from underneath its shabby jacket. It is they who gave us freedom of knowledge . . . social freedom.

But our generation will be remembered for the revolt of the free : those who saw in time that too much freedom was license, wastage . . . that direction and protection during the emotional years were best.

I hope you'll like our girls, Mother.

I hope I'll like them too. But most of all, I hope that they will like the society we intend to build for them . . . a society of gay and gracious gentlemen and gentle women who will succeed my generation who were free, but all too free.

Your loving daughter,

NANCY".

In the nineties it was thought demeaning for a lady to go into business even in New York. The stigma of trade was too intolerable for her to endure. It was in 1900 that four ladies of birth and position strangely, dramatically and simultaneously went into trade. At this news the society shuddered and went white. For a year or so the four brazen ladies continued to be classed as out-castes, Pariahs and figures of shame. They, however, persisted and prospered. The result is that now one sees thousands of prosperous lady milliners, lady dress designers, decorators and agents of various sorts. They are present in departmental stores, restaurants and offices.

There can be little doubt that the appearance of women in public and in offices has added greatly to the charm and amenities of life—life in the office and in the street. Voices in the office are softer, colours gayer

and desks neater. Submitted to business routine, women are disciplined quite easily and make better routine workers than men.

These business women, however, being alone have created a lot of new problems. The acuteness of such problems will be realized from the fact that a book called "Live Alone and Like it" by Marjorie Hills and published in 1936 was quite popular. The traditional sex code has broken down. Quite definitely the attitude and with it the behaviour of women is changing and men are adjusting themselves to this change. The very definition of morality has undergone a change. R. Michels defines "any sexual act in which harm is wilfully done to the physical or moral personality of the sexual partner is immoral." A recent enquiry*, in which 1,364 students contributed to the study, representing 46 colleges and universities of all types scattered from coast to coast, showed that half of the men and one quarter of the women juniors and seniors in American colleges to-day have had pre-marital sex experience. Three quarters of the men were willing to marry non-virgin girls.

The following extract from a newspaper will throw further light on the problems created by girls going in for business careers :—

"SOS ! . . . . . SOS ! . . . . SOS !

A young girl is calling for your help—will you give it ? She is 19 years old—as lovely in spirit as in face and form. For obvious reasons I cannot give her name, but these are the facts.

"Last spring, because of her father's death, she left her ranch home and became a clerk in a big city

* Youth and Sex. A study of 1,300 college students by Dorothy Dunbar Bromly & Florence Hexton Britten.

department store. Knowing no one, she was desperately lonely. Then her beauty attracted the attention of one of the owners. . . . . .

" Awed by his position, attracted by his charm, and afraid of losing the wage her mother so sorely needs—she accepted his invitations to dinners and drives. Now she finds herself in a terrifying situation.

" He has asked her to accept his love. He frankly says he has no desire to leave his wife and children or jeopardize his standing. But—he claims to love her deeply. . . . . . says he will amply provide for her and her family . . . . give her financial security she could never have otherwise . . . . care for her as loyally as though they were married. Yet, if she refuses him, it is equally plain that he will fire her.

" What shall she do ? She is a good girl. . . . . But does goodness pay ? Do the old laws still hold ? Or are these new ways, of which he tells her, better and wiser ? She likes him . . . . She is tempted. She asks you to advise her."

With the exception of a small group of talented women, with unusual energy, which drives them to work day after day, the majority of girls have of late come to realize that marriage is after all preferable to living alone. Even the author of " Live Alone and Like it " frankly confessed in the opening chapter of her book that it was no brief in favour of living alone. Five out of ten of the people who did so could not help themselves and at least 3 of the others were irritatingly selfish. She herself was married recently at the age of 49 to a man of 65 years of age. Just after, she declared, " I will be a housewife—the old fashion kind. Why, I have already dropped all my syndicate writings. I would like to raise a family ".

At Hamilton a woman of 93 took a husband of 72.

Dr. Feline E. Schelling, University Professor of Pennsylavania was reported to have married at the age of 80 Miss Gertrude A. Bueb of 46 years of age.

A group of 113 young ladies from Los Angeles were recently reported to have started what they call "Husbands Preferred Club." They call it husbands preferred, because they all agree that they would prefer to have husbands and homes rather than jobs. In the meantime, of course, they must keep working to earn their livelihood. Every one of them has pledged that upon becoming married, she would give up any gainful occupation. They are quite sure that they could occupy their time in creating and maintaining a home—a pleasant enjoyable place for the man of the house to return too eagerly and use any excess energy in active work towards the solution of community and social problems and the varied interests the world to-day offers.

An interesing questionnaire was published by Judith P. Chase on "how to find your score as a prospective bride?" She issued a set of about 100 questions under various heads and said "Go through this questionnaire carefully, if you want to find out why your boy friend hasn't proposed, how you stand with him now and whether he is likely to pop the question soon or late or if, alas, you are going to be an old maid".

In another series of questions under "Aims and Ambitions of Young America," one of the questions put to girls under 30 was, "Is young America ready for marriage at 25?" Quite a number replied that they believed that they were fit at 25. A married girl of 25 wrote :

"Boys and girls who marry young are more contended, stay out of trouble, and really strive for a better

place in this world, because they want to make the one they love proud of them.

"Early marriages are ideal, because the boys and girls have not yet developed strong enough personalities or habits that would conflict with their partners.

"Love is the strongest thing in this world, and the average girl will gladly give up her very fine position to struggle along on Jimmy's salary. Youths are ready for marriage several years before 25, and they feel pretty bitter and discontented if they have not found it by the time they reach 25."

Another girl writing on the same subject said, "The youngman of 25 who can't afford to marry is certainly not a 'typical American.' The average young American has garnered enough education, experience and cash by that time to face marriage. . . ."

Another girl of 20 speaking from experience wrote. "Is early marriage a help ? Indeed it is, to-day more than ever before . . . for through it the young find the steadying influence they so greatly need in this tumultuous world. I am one among many wives whose husbands are still in school. . . . . .

"I have seen scatter-brained, restless girls become poised and serene in a month ; and listless, cynical boys take a new hold on life from the moment they were married.

"Because young people to-day have so much to learn, they need to begin early, while they're still bursting with confidence, and before mental confusion and frustration set in. For confusion attacks not those who are busy, but those who have time in which to haggle and worry and question the value of life. So follow your heart—set yourself a definite goal—love will hold you steady !"

Another girl of 24 replying to the same question wrote "As my life unfolds, I can honestly say that I have found far greater happiness as a homemaker than during my seven years of business life. I do not hesitate to encourage young people to marry, provided they have the determination to make a success of marriage." Yet another, while agreeing that marriage was a great joy, expressed that preparation was necessary :

"The modern girl should get the restlessness out of her system or have her job or career before she marries. Then she is much less apt to seek separation when things get hard.

"Modern life puts so many demands on a modern wife. The average husband has far broader contacts with the world than his bride, whose experience has usually been limited to her family and friends, an occasional movie or club meeting. As a consequence, he expects far more of her than was expected of her mother.

"A modern man's craving for companionship cannot be satisfied with a clean house and three meals, however good. He expects mental stimulation—a sympathetic understanding of his problems, shrewd advice—all of which are far beyond the capacity of most young girls. As a consequence, he is apt to look elsewhere for happiness—leaving a discontented lonely wife, who bitterly wonders what it is she lacks.

"Marriage is vitally essential to happiness and far too precious to be wrecked by lack of preparation. Why expect an untrained, ignorant child, whom you would not trust with any other serious task, to make a success of the most difficult relationship in life. It is both stupid and unfair. Life and love deserve fitting preparation."

Notwithstanding the fact that the majority of marriages in America take place at a ripe age, one marriage in every six or seven ends in the divorce courts. Refusing to annul the marriage of a woman who claimed that her own husband had married her for lucre instead of love, a modern judge declared, "Every marriage is based more or less on a fraud. Every man and woman always puts his or her best foot forward during courtship."

Commenting on this Dorothy Dix added "We can't even imagine a courtship conducted on a real honest basis. No girl would say 'yes' to truthful James who would pop the question by saying, 'Well, Sarah, you are no treat to the eyes and your disposition is nothing to brag about, but you look strong and healthy and you are a good cook.' Nor would any man lead veracious Jane to the altar if she told him frankly that he lacked about a million miles of coming up to her dream man and that the first thing she was going to do if she married him was to make him over, but that husbands were scarce in these days."

And indeed divorces are claimed and often granted on the most trivial incidents in life. In one case the doctor said she needed milk because she was rundown. The wife begged her husband to buy a cow but he said it was a luxury they could not afford. No cow, no wife, the court decided.

In another case a jealous wife kept checking on her husband's whereabouts. If he said he was going to the club, the wife was sure to telephone to find out if he told the truth. Result, she has no more husband to check upon. The court decided it was needless suspicion.

Yet in another case, a husband for sport threw a bucket of water on his wife while she was sleeping. The wife went shivering home to mother and thence

to the divorce court, where she was granted the last laugh over her practical joking husband.

The wife of a Justice of the Peace sought divorce stating that the trouble with her husband was that he could never keep his home and office authority separate.

A young bride left her husband in Bali, where they went for a honeymoon and returned home for a divorce. "No husband" she said "should ever be taken to Bali on a honeymoon; at least I could not stand the competition".

The divorce courts sometimes do use a little more commonsense. A divorce was denied to a husband who merely wanted a "more modern" wife to fit in with his "more lucrative position"; the husband earned $90 a month when he married in 1930, in 1939 he was drawing $250.

Even in "free" America, every now and then cases are reported in the press of wife-beating. Women advisors in the press constantly din into the housewives' ears that they can win over their husbands by tenderness and love. "Whenever you feel anything important, consult him. Admire the clothes he buys. Cater to his taste in food and house-furnishing. Pretend to care only for his selection of entertainment and see to it that whatever guests come to your house, they see just what a beloved husband he is.

"This requires patience, infinite perseverance and a great deal of love. . . . Ask your husband's help to discipline the children. Do not whine to him about them; just tell him that he will be more able than you are to make them obey and back him up, when he gives them a command."

An oriental woman may feel jealous of her lucky American sister. The latter has freedom and equality

with man. Her parents do not groan when she is born and her brothers do not look down on her as less than themselves. She goes to school and to the university. She need not even marry if she does not wish to. She can be a lawyer, a doctor, an artist, a scientist, an engineer; in fact, anything. Yet a lot of those who have joined independent careers have every now and then confessed, " I have been both a bread-winner and a house-keeper and I know that bread-winning is infinitely more tedious, more taxing, more nerve-racking than house-keeping. Indeed cooking, cleaning, caring for children, if you know necessary bills are going to be paid, are almost as good as play after the insecurity of competition in business and the arts."*

In the office women have to talk with civility ; in the home they talk with authority. Even in America the real authority a woman does exercise is still from her traditional old throne—the hearth—over which she presides as the happy ministering angel. Thus American women may be better off than their oriental sisters in all things that do not matter, they remain very much in the same situation in all things that do. Miss America sheds the same tears and has the same heartaches as her prototype in the East.

Yet the American woman's share in building up a better America must not be under-estimated. After her duties in the home are finished and children are gone, she goes looking round in what small ways she can help to improve housing, to get better laws made for improving conditions locally and nationally for children, to investigate and change obsolete education in schools and textbooks. Her energy is happily released elsewhere than on her harassed husband and over-wrought children.

---

*Pearl S. Buck, Winner of Nobel Prize Literature, 1938, in "Harner's Magazine".

Women leaders of thought remind their sisters every day that they should not be a lost source of power to the nation. "Spoiled, petty, restless, idle, they are our greatest unused resource, good brains going to waste in bridge and movies and lectures and dull gossip, instead of constructively applied to the nation's need of them."

X

SEE AMERICA FIRST

In the past 25 years there has been a constant urge in the United States to encourage Americans to see America first before they paid a visit to Europe. Says the American patriot "More Americans need to wake up to the fact that in their own West is scenery that is beyond comparison. Travellers talk of the Fjords of Norway; but let them go to Hood's Canal or Lake Chelan in Washington, or to the lakes of Glacier National Park: The Himalayas and the Andes are famous among mountaineers; but what of the Sierras, the Cascades, and the Rockies? These may not be so lofty, but they are inspiring and as overwhelming. Adjectives are used extravagantly in describing the Selkirks of Canada; but there are the tremendous precipices and glaciers of North-western Montana. Visitors take delight in the flowers that bloom high up in the Alps; but where are flower-clad mountain meadows to compare with those of Colorado or California or Oregon or Washington? The falls of Zambesi in Africa are majestic; but why lose sight of the great Cascades of Wyoming and Idaho, of Washington and Oregan, California and Utah, some of these two and even three times as high as Niagara? It is not strange that travellers speak with admiration of the mountain highways of Europe, yet how many realise that in the Western States are roads that surpass even the superb highway on the Stelvio Pass. There are glorious rivers in Europe and Asia, but how many of these can be thought of with the Columbia?

What has the Riviera to offer in scenery and climate that the coast of southern California cannot duplicate or surpass? When the lure of the desert is spoken of, why should we persist in thinking only of the Sahara or the plains of Tibet? In the West there are deserts as boundless and as attractive. Then there are the mighty forests of the Pacific Coast, and the Grand Canyon of the Colorado and the Yosemite Valley and Yellow Stone Park and Carter Lake, and how many other wonders that are unlike anything to be found elsewhere."

"Every section of our country," declares the Director of the National Park Service, "abounds with native cultural achievements, which should be linked together, to build and strengthen the fabric of the growing American culture."

"More mysterious in its depth than the Himalayas in their height," writes Professor John C. Van Dyke, "the Grand Canyon remains not the eighth but the first wonder of the world. There is nothing like it."

"In America we are just awakening to our rich heritage of achievements and blending culture—our history. We are beginning to link together the separate prides and outlooks into a nation of one people with heritage of all. In the awakening, we look upon our native scene, stretching from coast to coast and four hundred years in depth. It has been keenly advocated that if that vision—the vision of many poeple made one—is to endure undimmed, it must be bolstered by practical measures and visible evidences."

The Congress of the United States has cleared the way in two significant Acts: the Antiquities Act of 1906 and the Historic Sites Act of 1935.

Under the Antiquities Act, the President is

authorised to set apart, as national monuments, outstanding objects of prehistoric, historic and scientific interest. Seventy-four national monuments have been, thus, created, preserving famous archæological and historic sites and many areas, which are of geological, ethnological, and biological value, are now administered by the National Park Service in the Department of the Interior.

The Historic Sites Act, empowering the Secretary of the Interior, through the National Park Service, to co-operate and enter into agreements with the States and other public organizations for the protection of important historic objects, enunciates this very significant preamble :

"That it is hereby declared that it is a national policy to preserve for public use historic sites, buildings and objects of national significance for the inspiration and benefit of the people of the United States."

Following the mandates of Congress, the National Park Service is acquiring, protecting, and making available to the nation, many famous areas, structures, and objects of historic and prehistoric value. "As ingredients in our common historic right, the cultures of east and west, north and south, are equally essential. From the trappers' rendezvous, the long and perilous Oregon Trail, the Spanish era of the south and west, the Pilgrims of New England, the planters of Virginia, and countless others, come the stones that build the structure."

Side by side with the national monuments, national parks were set apart by the Congress for the use of the people of the United States generally, because of, some outstanding scenic features of natural phenomena. The principal qualities considered in selecting areas for park purposes are from inspirational, educational and recreational values.

National parks may be defined as the superlative natural areas, set apart and conserved unimpaired for the inspiration and benefit of the people.

These parks are so preserved that the native beauty and native spun character of the country is not destroyed.

For the national parks the Federal Government seeks to locate, appraise and secure for public inspiration and benefit :

"All those areas that are nationally of more value for recreation than for any other use;

"Outstanding stretches of the ocean beaches ;

"Nationally important prehistoric and historic sites, objects and buildings;

"The most instructive geological exhibits—such as the Grand Canyon ; and

"A system of nationally important scenic and historic parkways."*

One of the important objectives of the national park and monument system is the preservation of large tracts of roadless wilderness as a character and stamina-building resource for all time.

The national park programme is also a broadly educational venture. It is an attempt to preserve, make accessible, and present to the millions of people, who annually visit the parks and monuments, a living story of the world about them. When people refresh themselves in great natural areas and at historic shrines, natural history and human history are rescued from the laboratory and the archives to become vital elements in the welding of the Nation.

---

*Portfolios on the National Park and Monument System, issued by the American Planning and Civic Association, Washington, D.C.

National parks minister to human needs not only directly, but provide a lasting source of income to adjacent communities and numerous industries. People spend money in journeying to and from the parks and that money directly contributes to the stability of those communities and industries. That is a multiple use of the park resources and year after year, the same resource is "sold" and resold without impairment or depletion.

National parks are nature sanctuaries. Botanical and zoological gardens preserve plants and animals, fragments of nature under artificial conditions. Wild life refuges and game preserves are usually set up to preserve certain species of animals, but make no pretense of preserving nature intact. National and state forests are set aside primarily for their timber and forage crops; since logging, grazing, hunting, and other such practices are permitted on them, they are not nature sanctuaries.

The function of the National Park Service in the field of geology is the protection and interpretation of outstanding geological exhibits for public benefit.

The major work of park geologists is the study and interpretation of the earth story in each park and monument. So successful have their efforts been, in collaboration with museum experts, that the most complicated geological processes are simply told and readily understood in park museums, at way-side exhibits, and in the presence of the natural objects. Such information is freely available for the visitor, who wants it.

Forestry in the national parks is very different from commercial forestry. The park forester is not concerned with producing logs for the mill or forage



Animal life in National Parks in U. S. A.

for domestic stock. His sole objective is to maintain the park in its natural condition.

The same applies to animal life. In National Park preservations, by law, the wild life must be maintained under natural conditions; the animal and its native habit must be preserved together. That is the basis of park wild life management, and for that reason national parks and monuments form the most effective wild life sanctuaries in the country to-day. Many rare and vanishing species have been helped by such protection. Hunting, trapping and poisoning of wild life are not permitted in the parks.

Every possible facility and service is provided to the park visitors. One fact which is greatly emphasised throughout is that the parks belong to the people of the nation "The freedom of each park is yours, to be enjoyed without irksome restrictions, so long as you leave it unspoiled for the next visitor".

To meet the needs of park visitors, the National Park Service has followed the general policy of providing a graded scale of accommodation, ranging all the way from the free camp grounds, provided by the Government, to the cabins, lodges, and hotels provided by the park operators. The Service attempts to provide facilities that will meet the financial requirements of every visitor.

The public service facilities built and operated by private enterprise are maintained under franchise, granted by the Secretary of the Interior, under authority of Congress. The operator's charges and services are approved by the Department of the Interior and their books are subject to its audit.

The detailed maps of the national parks, given to all who ask for them, are of marvellous accuracy

and detail. The explanatory legend on the map is quite exhaustive ; it tells of the location of the ranger's stations, where the widest possible view of the surroundings is available, of wagon roads, of private roads, trails, telephone instruments, public camping grounds, hotels, school houses, cabins and tool boxes.

It is not possible to attempt any description of these scenic parks. The park authorities issue a portfolio containing beautiful photographs and brief descriptions of the various parks.

The Yellow Stone National Park is the largest and most widely celebrated of the American parks. It is a wooded wilderness of over thirty-four hundred square miles. It contains more geysers than are found in the rest of the world together. It has innumerable boiling springs whose steam mingles with the clouds.

It has many rushing rivers and large lakes. It has waterfalls of great height and large volume. It has fishing waters unexcelled.

It has canyons of sublimity, one of which presents a spectacle of broken colour unequalled. It has areas of petrified forests with trunks standing. It has innumerable wild animals which have ceased unduly to fear man ; in fact, it is unique as a bird and animal sanctuary.

It has several great lodges and hotels, and also many free automobile camp grounds. It has a good road system.

In short "it is not only the wonderland that common report describes; it is a fitting playground and pleasure resort of a great people; it is also an ideal summer school of nature study."

Eagerness is in the air at the Glacier Park. Like

a child turned loose in a candy shop, one experiences an almost overpowering desire to sample all the good things. The lure of a thousand and one delights may confuse the mind and cause one to rush about in a haphazard pursuit of new experiences.

"Take the advice of the thousands who have preceded you in this unspoiled wilderness;" Says the park attendant "Take your time: For example—hike without haste along marvellous mountain trails, when the rising sun flashes over the snow-crested peaks and mirrors colorful mountains on the surface of turquoise lakes. Saunter through lush greenery, where many species of four-footed folk and feathered friends will greet you. Stroll through acres of rare and lovely wild flowers. Pause in the misty veil of a sun-flecked waterfall. Stop frequently for full enjoyment of all that unfolds about you and become enriched by lasting memories."

He continues: "At midday, when the sun is high, see how different scenes appear when no shadow obscures the indescribable colourings on rocky slopes. See how unfamiliar flowers lift their faces to the shafts of life-giving light, which are shot downward between the branches of tall, straight trees. See how the ice and snow, far up toward the summit, shine like reflectors under the meridian sun.

"Later, when shadows lengthen, observe the magic of approaching sunset. Even sombre rocky walls become golden; waterfalls touched by levelling rays become iridescent; lake colors deepen; mystery takes possession of the forest; animal scurry away to their night haunts.

"Finally, the enfolding dusk silhouettes the mountain peaks against the translucent sky, creating a sense of strength and majesty and calm. Twilights and

evening star are nowhere else so thrilling as here, in the heart of nature."

Our duties took us to many scenic places in the States. Everywhere we found travellers bound for the parks. There were men trudging along the road with packs on their backs, smilingly declining the offered lift in a passing machine ; they were out for a hike and they could not think of lessening the joys of vacation by entering a motor car. There were women on horseback, with their outfit on a led pack-horse ; there were whole families in automobiles whose equipment was roped to the mudguards, strapped on behind, or overflowing from the rear seat, where children could be distinguished from their miscellaneous surroundings only by their gleeful voices.

Women and children wore garments like those of men and they bore themselves as naturally in their sensible garb, as if it was the accustomed dress of every day.

Every one of them had a cheerful greeting for the passerby; there was invariably a wave of the hand and a smile that seemed to say, 'Isn't this the life.'

These wanderers from home were by no means all of the leisured class. There were clerks from the city and ranchers from the country.

Everywhere in the west, there are public camping grounds, provided by individuals or communities, by the State or by the Forest Service. Some of these camps can accommodate scores ; others are intended but for one or two families. It is possible to go all the way from San Diego to the Canadian line, spending every night on one of these camping grounds. In many of these rude fireplaces are provided, as well as other comforts. In



Hikers trudging along the road with packs on their backs

the forest camps, wood may be gathered freely and in some of them a supply of cut wood is always available.

The provision of such facilities to the vacation seekers is really remarkable, but the supervisor of the forest will tell you, " No, it is not remarkable. These forests belong to the people. It is our business to tell them of their property, to lure them to their heritage. . . not only to the trail or the camp, but to the site for cabin or more pretentious houses which have been laid out on the shores of the lakes, by the stream or deep in the forests. The people are coming, let them come. For the forests. . . . their forests . . . . are calling them, it is our delight to be the means, by which the call is made known."

The result is that whereas in 1916 only 356,097 people visited the national parks, in 1930 a total of 2,774,561 saw these areas, and an additional 472,095 visited the national monuments. In 1938-39, 500,000 visitors were recorded in the Yellow Stone Park alone.

Besides these parks, we found that every dam built in the United States attracted a large number of visitors from the surrounding area. The authorities incharge of the dam had arranged official guides to take the visitors round and to explain them the general features. About 300,000 visitors came to see the Boulder Dam every year. The maximum number recorded in one day was as much as 5,510. The number of visitors of all nationalities, who visited the Grand Coulee Dam in 1938-39, came to 320,000 and the maximum in one day to as much as 7,000.

The attraction of these National Parks and historical monuments has encouraged travel within the States. President Roosevelt once remarked that travel made people better patriots and better neighbours of other patriots.

Travel has promoted good hotels and it will be no exaggeration to say that life in American hotels is a triumph of achievement in glorious living.

There are at present 16,000 hotels in the United States employing over half a million people. About one billion meals are annually served to guests, and another 220,000,000 to employees at a cost of $300,000,000.

Some idea of the business that hotels and travelling have promoted in the States will be gathered from the following figures of consumption of food and other articles in the hotels during the year ending May, 1939 :—

Ham	..	8,500,000	lbs.
Bacon	..	4,200,000	„
Fish	..	11,480,000	„
Meat	..	51,000,000	„
Coffee	..	41,000,000	„
Tea	..	2,000,000	„
Sugar	..	75,000,000	„
Potatoes	..	6,000,000	„
Butter	..	46,000,000	„
Eggs	..	16,000,000	doz.
Milk	..	14,000,000	qts.
Guest Soap	..	1,200,000,000	cakes
Sheets	..	480,000	doz.
Towels	..	1,400,000	doz.
Carpets and Rugs	..	5,200,000	sq. yds.

These crowded national parks reminded me of the crowded places of pilgrimage in India, where history and scenery are both combined. It is probable that *Tirath Yatra* in India had its origin in similar circumstance.* And it would not be wrong to assume that

*The Cultural Heritage of India, Volume III, published by Sri Ramakrishna Centenary.

the principle underlying the choice is more or less to lead the masses out of their homes, their villages and provinces on all-India tours of pilgrimage, so that they may know their country in all its parts and get into touch with their people. Places of *Tiraths* are spread all over India from Himalayas in the north to Ceylon in the south, from Kashmir Valley in the west to Rangoon in the east. Travel to these places of natural beauty, reflecting India's ancient glory, must have been a great factor in nation-building, as these places were visited not only by the rich but by men of very ordinary means as well.

Unfortunately the idea of pilgrimage to these *Tirathas* is declining, and now it is only the rich who may, during summer months, go to hill stations or have a run to Calcutta, Bombay or Karachi. They, however, miss much of the beauties of nature, which have been so lavishly bestowed on India. How many Indians have paid a visit even to Harappa and Mahenjo Daro or to Taxila, which show the existence of a civilisation in India, some three to four thousand years before the birth of Christ—a civilisation, which any country may well be proud of. Perhaps the number of such visitors may be even less than the number of people who have made a pilgrimage to Europe.

About the sublimity of natural beauty in India, there can be no two opinions. Travellers agree that no mountain scenery—not even that of the Alps, nor any in the Caucasus, the Andes or other famed highlands of the world—is even remotely comparable in splendour and sublimity to what the Himalayas offer in almost any of the valleys. A continuous ridge nearly double the height and five times the length of the Swiss Italian Alps, with a mountain region depending on it, of the size of Spain, Italy and Greece put together in a row and

Travel has promoted good hotels and it will be no exaggeration to say that life in American hotels is a triumph of achievement in glorious living.

There are at present 16,000 hotels in the United States employing over half a million people. About one billion meals are annually served to guests, and another 220,000,000 to employees at a cost of $300,000,000.

Some idea of the business that hotels and travelling have promoted in the States will be gathered from the following figures of consumption of food and other articles in the hotels during the year ending May, 1939 :—

Ham	..	8,500,000	lbs.
Bacon	..	4,200,000	,,
Fish	..	11,480,000	,,
Meat	..	51,000,000	,,
Coffee	..	41,000,000	,,
Tea	..	2,000,000	,,
Sugar	..	75,000,000	,,
Potatoes	..	6,000,000	,,
Butter	..	46,000,000	,,
Eggs	..	16,000,000	doz.
Milk	..	14,000,000	qts.
Guest Soap	..	1,200,000,000	cakes
Sheets	..	480,000	doz.
Towels	..	1,400,000	doz.
Carpets and Rugs	..	5,200,000	sq. yds.

These crowded national parks reminded me of the crowded places of pilgrimage in India, where history and scenery are both combined. It is probable that *Tirath Yatra* in India had its origin in similar circumstance.* And it would not be wrong to assume that

*The Cultural Heritage of India, Volume III, published by Sri Ramakrishna Centenary.

the principle underlying the choice is more or less to lead the masses out of their homes, their villages and provinces on all-India tours of pilgrimage, so that they may know their country in all its parts and get into touch with their people. Places of *Tiraths* are spread all over India from Himalayas in the north to Ceylon in the south, from Kashmir Valley in the west to Rangoon in the east. Travel to these places of natural beauty, reflecting India's ancient glory, must have been a great factor in nation-building, as these places were visited not only by the rich but by men of very ordinary means as well.

Unfortunately the idea of pilgrimage to these *Tirathas* is declining, and now it is only the rich who may, during summer months, go to hill stations or have a run to Calcutta, Bombay or Karachi. They, however, miss much of the beauties of nature, which have been so lavishly bestowed on India. How many Indians have paid a visit even to Harappa and Mahenjo Daro or to Taxila, which show the existence of a civilisation in India, some three to four thousand years before the birth of Christ—a civilisation, which any country may well be proud of. Perhaps the number of such visitors may be even less than the number of people who have made a pilgrimage to Europe.

About the sublimity of natural beauty in India, there can be no two opinions. Travellers agree that no mountain scenery—not even that of the Alps, nor any in the Caucasus, the Andes or other famed highlands of the world—is even remotely comparable in splendour and sublimity to what the Himalayas offer in almost any of the valleys. A continuous ridge nearly double the height and five times the length of the Swiss Italian Alps, with a mountain region depending on it, of the size of Spain, Italy and Greece put together in a row and

of which a small portion (Kashmir) looking like a nook nestled in the north-west corner, is as large as all Switzerland—surely such a ridge gives scope to variety of scenery.

We are told that it is not uncommon to stand on some point, from which the eye takes in a semi-circular sweep of undulating or jagged snow line with an iridescent opal-like glory, ever playing along it, and with peaks rising from it on intervals— "heaven kissing hills" indeed ; the least of which is several thousand feet higher than Mount Blanc, like the pillars of ice supporting a dome of a blue so intense as to seem solid ; while at your feet forest clothed and cut by valleys, stretch down the lower ridges, which descend tier below tier, in four great terraces into the hot plains of lower Hindustan.

If the spectator had taken his station on a summit of the highest ridge, somewhere on the north-west boundary of Nepal, the grandeur of the physical surroundings would be helped by that of memories and associations. He would then be at the very core and centre of the divine Himavat—to use the fine ancient name, which means "Abode of winter," the region to which the Aryan Hindu has, for ages well-nigh untold, looked with longing and reverence; for there, on the fairest and loftiest heights he knew, he placed the dwellings of his Gods. There they were enthroned in serene and unattainable majesty ; there they guarded the hidden store houses of the choicest gifts to men ; for there lay the mysterious caves of Kuvera, the god of wealth, the keeper of gold and silver and other precious ore, and of sparkling gems ; there snow-fed and pure, at a height of about 15,000 ft. slumber the sacred lakes, eternally mirroring in their still waters only the heavens and the mountain wilderness that cradles them ; and

there, too, cluster the springs of the great rivers, holiest of things—the Indus and the Sutlej and the Ganges and the Brahmaputra, with the most glorious name "Son of God"—that river ever had. To such regions all wilderness and mystery of peace and silence, but for the rush of torrents and the music of wind and leaves, world-weary men and women, longing for the rest and beauty of passionless, eternal things, have come age after age, and still come, on long pilgrimages, to drink deep of solitude and meditation and return heart-healed and renovated to the plains below; unless—and thrice blessed are those to whom this is given—they can stay among the mountains and woods, as in the vestibule to a higher world, stripped of all earthly clingings, desires and repinings, patiently and happily waiting for the final release.*

Visitors from Europe have been enchanted by the natural gifts of Kashmir. The author of "Nanga Parbat Adventure"† has paid a handsome tribute.

"Where the waters from melting snows combine, as here, with a natural fertility of the soil, the earth weaves for itself a coat of many colours. Green, red and white, these are the colours of Kashmir; green the broad rice-fields with their terraced irrigation channels, green, the slender limbed poplars; red, the gentle outliers of the mountain range; and above them spotless white, the shining snows of the Himalayas.

"Srinagar the capital of Kashmir is the city of house boats. These floating houses on the picturesque Jhelum in whose waters the Himalayan summits are mirrored, offer up-to-date accommodation, dining rooms with china and brass-work on the walls, sitting

---

*Vedic India by Zenaide A. Ragozine.

†Translated from the German book of Fritz Bechtold by H. E. G. Tyndale.

rooms, hung with heavy Kashmir rugs and bed rooms with baths attached, to satisfy the most luxurious tastes.

" Srinagar is a piece of Venice in a genuine oriental setting and the Jhelum is its Grand Canal ".

And who would not be proud to claim, as belonging to his country, the paintings in the Ajanta Caves, the sculptures of Gandharv and Sanchi, the bas-reliefs of Amarvati and the chaste-white Taj Mahal, that jewel of architecture and one of the wonders of the world.

Indian railways and travel Bureaus are doing their little bit to encourage travel, but much remains to be done to bring these museums of nature and history within the means of the average Indian and to make them sufficiently comfortable for the vacation of the more well-to-do.

XI

PUBLIC SERVICES

In America, apart from a very few centralized administrations, there is no traditional civil service. The Governor, the heads of departments and even some other officials are replaced by new faces whenever there is a change of party. In the period 1830—1870, the idea of spoils of services belonging to the winning political party was universally accepted and even acclaimed. This resulted in bringing into the public services many men of indifferent qualifications. The system deprived the services of much of their prestige. Many branches of Government were dominated by avowed spoils-men, corrupt, incompetent and partisan or all three together.

In the period 1870—1900 the principle of merit as against party service and a continuity in tenure was encouraged. In the practical operations of the Government, the value of the expert was recognized. There was a definite tendency towards consolidation of administrative powers on all levels of authority, and a movement in the direction of professionalisation of the services, in order to make use of modern practices in dealing with the problems of Government operations.

In England, the permanent Under Secretary is the symbol of the continuity of the State, for he survives a change of Government. The permanent organization is well acquainted with the practices and the precedents. Its members have been in office, while several Secretaries and Prime Ministers have changed. It is the tradition of the office that the permanent services shall remain

above party politics. The permanent organization is considered to be the shepherd of Prime Ministers and Secretaries! The head of a permanent organization is always a hard-headed, practical and gently cynical realist. In the background of the permanent chief and his high colleagues are other men, a long line of them preparing to move up and carry on the tradition. There might be a few who have gone ahead by favour but that is far from the rule; the man who goes up has to win his way against the keenest sort of competition from equally ambitious fellows. In this vital field, it is indeed a matter of the survival of the fittest.

The permanent organization is considered as the acknowledged guardian of national traditions and interests. No Premier or foreign minister coming from outside the service, as all of them do, could ever afford to ignore this organization. He might make enormous blunders that would cost himself and his country dearly. In fact the Chiefs of State frankly lean on this organization. No party Government could remove any of its members, if they personally behaved themselves.

In the United States, too, the necessity of strengthening the permanent services and assuring them security has been realized in order to secure the best men. This has shown definite results in the direction of increasing competency and integrity in Government service.

In technical services there has been some security throughout. The age of retirement is 65. After retirement, members of the technical profession do not generally lose contact with the profession and their experience is not lost to the country. We were informed that promotions are strictly by merit. A fellow must have "produced something" to deserve promotion. He does not get it simply because he has been in service

for a long period. Both in U. S. A. and Canada public honours and titles are not conferred either on public servants or non-officials.

An engineer generally starts with a salary of $125 per month. The district engineer gets about $250 and the supervising engineer about $450 per month, the chief engineer getting about $800 per month. The Chairman of the Hydro Commission in Toronto gets $1,200 per month. The pay of clerical establishment and of inspector of works ranges from $100 to $300 per month. The pay of clerical establishment in private companies in New York as analysed by Merchant Association, New York, for May and June, 1938, was as below :—

Girl stenographers	Average	$30	a week.
(Lowest was $14 and the highest)	,,	$96	a week.
Male stenographers	,,	$34·6	a week.
Typists	,,	$23	a week.
Accountants	,,	$55·3	a week.
Auditors	,,	$51·6	a week.
Telephone girls	,,	$23·5	a week.
File clerks	,,	$22	a week.
Chief supervising clerks	,,	$52	a week.

A comparison of the above salaries with those of workmen would be interesting. Some of the specifications of public works specify the minimum wages to be paid to various classes of workmen.

A few typical wages are :

Common labourer	..	50 cents per hour.
Blacksmith	..	$1·4 per hour.
Blacksmith helper	..	$·99 per hour.
Bricklayer	..	$1·50 per hour.
Bricklayer helper	..	$·90 per hour.
Electrician	..	$1·70 per hour.

Electrician helper	..	\$1·10 per hour.
Machinist	..	\$1·40 per hour.
Metallic lather	..	\$1·6 per hour.

Working hours in offices generally are 8 a.m. to 4 p.m., with an interval for lunch and Saturdays are treated as half holidays. Besides Sundays, there are only 8 other public holidays during the year. These are:—

January, the 1st	..	New Year's Day.
February 2	..	Washington's Birthday.
May 30	..	Memorial Day.
July 4	..	Independence Day.
1st Monday of September	..	Labour Day.
November 11	..	Armistice Day.
December 25	..	X'mas Day.
One Thursday, generally in November, to be designated by the President as	..	Thanks-giving Day.

It will be interesting to note that the number of public holidays in India besides Sundays comes to 33.

Generally Government departments keep their own fleet of cars. Whenever any officer goes on duty he takes a Government car from the Government garage. For petrol he gets coupons. Government is able to purchase petrol at a very cheap rate. While the cost of petrol in the open market ranges from 20 to 26 cents* per U. S. gallon, out of which 6 cents a gallon is State tax, the cost of petrol to Government was said to be only about 9 cents per gallon. Government and the contractors using petrol for Government work do not pay any tax on petrol. Similarly, Government saves a lot in the purchase of cars and other accessories by calling in tenders for bulk supply. When an

*Equivalent to 10 to 13 annas approximately.

officer travelled in his own car, the T.A. allowed to him before July, 1939, was 5 cents per mile. We were informed that in July, 1939, it was reduced to 4 cents per mile.

One drawback to the above arrangement was that practically everybody had to keep a private car for his own use, which appeared to be an unnecessary duplication in some cases. The registration tax in the States is calculated on the weight of the car, so that the heavier and more expensive cars have to pay more than the cheap light cars. This system has some advantage over the system prevailing in the Punjab, where a 5-seater Rolls Royce pays the same tax as a 5-seater Ford.

Before the last Great World War, a Government official could talk freely to a newspaper man about his ideas of Government. The Bureau chief might not agree with his superior and would say so. One head of department might take issue with another. Out of their frankness, much discussion, which was often good for the country, could be aroused. The public got most of the facts essential for the formation of clear judgments. During the world war it was necessary to keep Government plans and preparations secret. In various departments central bureaus were established. Subordinates were told that they should send all news to these bureaus and must not talk to correspondents. After the war this system was found to be agreeable to the men in power, as they could manipulate information to suit their own ends and those of the administration in power, so the central bureaus were continued. They were even turned into high pressure propaganda agencies. They have busily turned out matter favourable to their bosses and, under direction, have suppressed facts that might be unfavourable.*

*Eugene J. Young in "Looking behind the Censorships."

The civil service employees are debarred from taking an active part in politics. A Bill was signed on 2nd August, 1939, barring all Federal employees from taking part in political campaigns. This Hatch Bill is meant to prevent pernicious political activities. President Roosevelt sent a lengthy message to Congress, explaining the limitations of the Bill. He argued that the Federal Government had the legal power to "prescribe as qualifications for its employees that they refrain from taking part in other endeavours which, in the light of common experience, may well consume time and attention required by their duties as public officials. Such qualifications cannot properly preclude Government employees from the exercise of the right of free speech or from their right to exercise their franchise." Replying to the question, whether employees of the Government would lose their positions if they merely attended political meetings, his reply was "No."

"I have been asked whether they would lose their positions if they contributed voluntarily to party or individual campaign funds without being solicited. The answer is, of course, no.

"I have been asked whether they would lose their positions if they should merely express their opinion or preference publicly—orally, by radio, or in writing—without doing so as part of an organized political campaign. The answer is no.

"I have been asked if the act applies to those who get Government benefits under the Social Security Act in the form of old-age pensions or in the form of unemployment compensation. The answer is no.

"Finally, I have been asked various questions relating to the right of a Government employee publicly to answer unwarranted attacks, made on him or on his work or on the work of his superiors or on the work

of his subordinates, notwithstanding the fact that such attack or misrepresentations were made for political purposes by newspapers and by individuals as a part of a political campaign.

"This raises the interesting question whether all Government officials, except the President and Vice-President, persons in the office of the President, heads and assistants, heads of executive departments and policy determining officers appointed by and with the advice and consent of the Senate must remain mute, if and when they or the work, with which they are concerned, is attacked and misrepresented in a political campaign or preliminary thereto.

"It will be noted that the language of the Bill wholly excludes members or employees of the legislative branch of the Government from its operation.

"It can hardly be maintained that it is an American way of doing things to allow newspapers, magazines, radio broadcasters, members and employees of the Senate and House of Representatives and all kinds of candidates for public office and their friends to make any form of charge, misrepresentation, falsification or vituperation against the acts of any individual or group of individuals employed in the executive branch of the Federal Government with complete immunity against reply except by a handful of high executive officials. That, I repeat, would be un-American, because it would be unfair and the great mass of Americans like fair play and insist on it. They do not stand for any gag act.

"It is, therefore, my considered opinion, in which the Attorney-General of the United States joins me, that all Federal employees from the highest to the lowest have the right publicly to answer any attack or misrepresentation, provided, of course, they do not make

such a reply as part of active participation in political campaigns.

"The same definition of fair and proper administration of the Bill applies to the right of any Government employee, from the highest to the lowest, to give to the public factual information relating to the conduct of Government affairs.

"To rule otherwise would make it impossible for the people of the United States to learn from those, who serve the Government, vital, necessary and interesting facts, relating to the manifold activities of the Federal Government. To rule otherwise would give a monopoly to originate and disseminate information to those who, primarily for political purposes, unfortunately have been given to the spreading of false information. That again is unfair and, therefore, un-American.

"It is, I am confident, the purpose of the proponents of this legislation that the new law be thus administered, so that the right of free speech will remain, even to those who serve their Government; and that the Government itself shall have full right to place all facts in its possession before the public. If some future administration should undertake to administer this legislation to the detriment of these rights, such action would be contrary to the purpose of the Act itself and might well infringe the constitutional rights of citizens. I trust that public vigilance will for all time prevent this."

Even a casual observer in the States cannot fail to observe the interest of Government itself—National, State and Local alike—in the technical problems of research and co-ordination. A very large amount of planning has been undertaken in recent years by the Federal Government. The traditional weakness of the authority of Government in the United States by the division of powers between the National Government

and the States, between the States and the Localities, has been rapidly making room for the central focus of authority. The first blow was given by the Civil War. "There is reason to anticipate the progressive development of centralisation in the face of the rise of interstate campaigns under modern economic conditions, the increasing importance of foreign trade, finances and diplomacy and the sweeping changes in the means of communication."

There is one great hindrance, however, in the growth of Government services. It is very difficult to cut down the total expenses of Government even in a period of depression. Business adjusts itself more quickly to the business cycle than does agriculture and perhaps both more quickly than Government. The fact is, however, acknowledged that Government is a powerful organization which should be placed in the service of the country in many different ways, and the greater the power concentrated in a Central Government, the greater the service that it will be in a position to render.

XII

A YOGI IN AMERICA—JOHN LUCIAN SAVAGE

In India we talk of Gita, in America there are people who put it into practice in their day to day life. These are the men who make America. They care neither for riches nor for fame. It can be truly said of them that their reward is their own work.

It is said that a prophet is seldom honoured in his own country, particularly in his lifetime. There are, however, exceptions to the rule. I found one exception in the case of John Lucian Savage. In an address presented to him at the time of the award of a gold medal by the Colorado Engineering Council for meritorious engineering achievements, the entire engineering profession from top to bottom paid him a touching homage:

" Most of us have felt in those far-off days we have left behind, the June Days of Life, that the search for elusive truth seemed more glorious, incomparably, than worries about the ways of men, and the dross of the world. There has always been some wistful recollection of this early search for truth. We long to understand the meaning of life. We want to know the things that are little, and the things that are big, before it is too late. So much of our lives is a self-cancelling vacillation and futility, a strife with our environment. No matter what may be the outcome of this struggle, we feel all the while that there is something vital and significant within us, that would bring order out of the chaos around us, in the affairs of this old world, if destiny would but beckon to assert our capacity for leadership.

This feeling, most of us admit is a conceit, for in the long run of the world's business, many are called to leadership but few are chosen. We seek the truth, not to make us rich, but to make us free. Free to recognize that ability and the charm of friendship are God's greatest gifts to man.

"Francis Bacon's voice thunders down the corridors of time. Said he, 'Seek ye first the good things of the mind, and the rest will either be supplied, or its loss will not be felt.' We do not believe that the philosopher told the whole story, or the half of it. For truly, we live in deeds not years, in thoughts not breaths, in feelings not figures engraven upon a dial. Time is measured by heart throbs, and we thrill with the opportunity to do honour to the wise and the efficient, who carry on in the sunshine of victory and the darkness of despair. We admire courage to free the eventualities of life, its praise and sorrow, and we commend the work and action of the talented.

"So in this spirit of admiration and friendship we meet to do homage to our friend Mr. J. L. Savage. . . ."

In the words of Mr. Raymond F. Walter* "Mr. Savage is a man of many friends and acquaintances in the engineering profession, where his technical and practical knowledge of design and construction of large dams is especially recognized and to-day, I believe, he is the most outstanding and widely known authority on high dams in the United States, if not in the world."

But Mr. Savage is even greater as a man. Our contact with him was brief but intimate and even in small little things of daily life shone the spirit of this great *Yogi*.

---

*Chief Engineer of the Bureau of Reclamation.

We went to him more or less as strangers from a far-off land and could hardly claim the personal interest and care that he took in us, and this was perhaps his usual way with everybody who came in contact with him.

A trivial incident which occurred just in the first few days made an indelible impression on my mind. We had planned to go on an inspection tour of the dams of the Bureau of Reclamation. The tour had been detailed with very great care by Mr. Savage himself. We had been assigned for those days a room adjacent to Mr. Savage's. A few days before we were to leave, he personally brought in a leather case that had been prepared for him for carrying printed specifications in a convenient manner. He said : "It will be convenient for you to carry the specifications in this bag." Before we had even time to thank him, he went back to his room and returned with a duster in his hand. We had little idea of what he was going to do or to say next, when we found him busy dusting the leather bag, adding that the bag had not been used for some time.

His associates told us that service has been his watchword and it has not always been in the line of his professional duty. To build magnificently in steel and concrete is a great thing. To build nobly in human values is greater. To help ambitious and worthy young men and women, educationally, who stand upon the threshold ; to inspire one's co-workers toward stronger, better and more worth-while effort ; to remain humble in demeanour and kind in contact; to plan and work for the comfort and happiness of unborn generations—these are the qualities which entitle Mr. Savage to the claim of a true *Karm Yogi*.

His wife has been deeply sympathetic with his



Mr. & Mrs. J. L. Savage along with Mr. A. N. Khosla.

plans and has been a great help to him. Her image is still before my eyes. Both of them came to see us off at the railway station when we left Denver on the eve of our departure from America.* It is so rare to see that transparent sincerity and attachment except in one's own parents.

They are both happy in a life spent in assisting worthy young people to obtain university training. Nephews, nieces, even distant cousins have lived at their home, at times two or three staying there while completing college courses that they had made available to them. They had looked through the university 7 boys and 4 girls. One of these girls came along with them to see us off. I was struck to see how deeply she was devoted to them. They, in their turn, would see to the minutest detail of comfort of the boys and girls whom they took under their care. It is so rare to come across a couple so intensely devoted to each other and so uniformly courteous and considerate.

Mr. Savage's only hobby is his work. His work has always been a recreation to him. He has little time for other so-called social activities. He does not smoke, he does not drink, and he has no use for any other time-consuming amusements, such as bridge.

Mr. Savage has frequently been honoured for his work, although he has never sought recognition. He has served on special Committees of the American Society of Civil Engineers, is a member of several honorary fraternities and has received the degree of Doctor of Science from Wisconsin University.

Mr. Savage has been responsible for the design of works, the total cost of which comes to about 2,24 crores

---

*We were shocked to learn the other day that Mrs. Savage is no more in this world.

of rupees. It may be remembered that the total capital cost of all the irrigation works in the Punjab, both productive and unproductive, up to the end of 1937-38 was only of the order of thirty-six crores. It would be safe to say that no engineer in the history of America or even of the world has a record of accomplishment which can equal his. Besides the Bureau of Reclamation he has had numerous consulting engagements. In recent years he has been the consulting engineer for the T.V.A. on Tennessee River Dams ; for the city of San Francisco in raising the Hetch-Hetchy Dam ; for several dams near Los Angeles ; for the Crow Creek Dam near Cheyenne (Wyoming) ; for the Porto Rican government on the Isabella project, for the West Indies Finance Corporation on the Barahona project and for the U. S. International Boundary Commission on Rio Grande dams and channel rectifications below Elephant Butte.

Mr. Savage told us that he started his life with Mr. A. J. Wiley from whom obviously he acquired a number of his virtues. Mr. Andrew J. Wiley's name is familiar to the Punjab engineers. Mr. Wiley acted as Consulting Engineer from October 1927 to February 1928 in the preliminary investigation of suitable dam sites in the catchment areas of the Punjab rivers. This eminent consulting engineer and expert on dams and irrigation and power projects breathed his last on October 8, 1931. He has, however, left his impression on the American engineering world.

Mr. Wiley was consulting engineer in succession on high masonry dams of the world, such as, Shoshone (1905—10), height 328 ft.; Arrowrock (1911—15), height 349 ft. ; Owyhee (1928—32), height 405 ft. (530 ft. in fault zone) ; and Hoover Dam (1930), height 727 ft.

Following the disaster of the St. Francis Dam in Southern California on March 13, 1928, great official and public concern was felt as to the safety of all storage dams, whose failure might endanger life. Mr. Wiley was chosen in this connection to report on twenty of the more important storage dams of the Bureau and about thirty-two dams of the city of Los Angeles.

Mr. Savage obviously imbibed from Mr. Wiley his capacity for work, his open-minded regard for the point of view of others, his absolute integrity, his abhorrence of sham or pretence and his hatred of deception or misrepresentation and a sound engineering judgment, an intensive habit of study and capacity for handling engineering details.

Mr. Savage always spoke of Mr. Wiley in the same manner as a disciple would speak of his *guru*,* but I would not be surprised if Mr. Savage has actually excelled his teacher.

It is an irony of fate that engineers are so little known outside their own small world. This world of to-day owes a good deal to the creative imagination and untiring work of the engineer, but, I think, never has the Nobel Prize for service to humanity been ever awarded to an engineer. If an engineer were ever in the run for such a prize, Mr. Savage would certainly stand very high on the list.

What is the life history of this great *Yogi* ? John Lucian Savage was born on a Wisconsin farm near Cooksville on Christmas Day, 1879. His father was a successful farmer, his mother a gifted writer. His engineering bent apparently was derived from his grandfather, a prominent surveyor, when that was the mainstay of Civil Engineering.

**Guru* in Hindustani means a teacher.

Jack was a dutiful, industrious and obedient boy and early developed traits of good management. His father sent him and his brother out in a field one afternoon to rake and bring in a load of hay. When some chums came along, a ball game was started and became so interesting that at sundown the work had not been touched. Jack thought of his stern parents' guiding hand and decided that the hay must be brought home. The team with empty wagon was driven alongside a neighbour's stack and a full load was quickly obtained. All was lovely that evening but it was the calm that preceded the next day's storm, when father learned the truth and squared the account.

Once his father made a sling shot for Jack and offered it to him as a present. Jack immediately went out to seek his "Goliath." He found it in the form of an empty house on a neighbour's farm and was delighted to find that the pebbles would break the windows and that each clanking sound indicated a bull's eye. Here Jack developed the trait of finishing any job once started and not a window remained intact when he trudged happily homeward.

In the University of Wisconsin, Jack was a member of the Badger Annual staff. In this publication he was classified "Women are not of his sphere."

After a few years in the field and on the design of irrigation structures, he left the Reclamation Service in 1908 "to become associated with Mr. Wiley in an engineering practice boomed by a water utilization programme, by private interest in the irrigation and power fields. Both were, however, retained by the Service in a consulting capacity, Mr. Wiley to his death and Mr. Savage until he rejoined the service in 1916."

During the period of his association with Mr.

Wiley, Mr. Savage participated in and, in most instances, designed many important structural works. The Salmon River Dam, the Swan Falls Power Plant on Snake River, the Barber Power Plant on Boise River, the Oakley Reservoir Dam and the American Falls Power Plant were outstanding works. During this time he received special assignment from the Reclamation Bureau for Design of Gates in the Arrowrock Dam Project.

During this period several interesting facts came to light. Jack Savage from the first was a prodigious worker, a habit that has lasted to the present time. Fourteen hours a day and generally weekends also constituted his usual assignment. His early associates recall that, although "he was the worst cook and the poorest pistol shot in the world," he was first out in the morning and the last to leave work at night.

In 1916, Mr. Savage re-entered the Reclamation Service in charge of civil designing work in the newly organized office of the Chief Engineer at Denver, Colorado, where all important designing work was then concentrated.

The Bureau of Reclamation is one of the departments under the Secretary of the Interior and corresponds to the Irrigation Department in the Punjab, if it were directly under the control of the Government of India. The principal reason that reclamation has been kept as a Federal subject in the United States is that too many States are concerned to leave the control divided. To do so would lead to endless disputes on the conduct, efficiency and consequences of steps taken independently by numerous authorities. Also, Federal organization permits of securing the best brains in the country for the solution of the many intricate technical problems met in the design and construction of difficult

engineering structures of an unusual character, particularly dams. Another important advantage is that financing on a scale adequate to the needs of such an immense organization becomes comparatively easier. Due to the existence of such an organization, a scheme like the Bhakra Dam Project, notwithstanding its interprovincial, territorial and technical difficulties, would have been completed in the United States long ago, not only for the irrigation of famine-stricken areas but also for the development of cheap hydro-electric power.

The rise of Mr. Savage in the Reclamation Service was phenomenal. His modesty did not hold him back. His knowledge and application counted as definite requisites for advancement in the Bureau. In 1924 he was placed in responsible charge of all important designing for the Bureau with the title of Chief Designing Engineer. "His return to the Reclamation service in 1916 gives an excellent key to Mr. Savage's interests and inclinations. His association with Mr. Wiley had been lucrative and there is little doubt, that had he so desired, he might have continued as an independent engineer and amassed a large fortune. There are several elements that have always loomed large in his scheme of life. The making of money has not been one of these. Mr. Savage has always manifested a desire to serve the public interests and to take part in enterprises that have, as their objective, the development of human relations. Then, too, he always preferred close association in work with men of technical and scientific attainments, men who like scholarly research. This interest in life developed a decided freedom from routine methods, as reflected in the creative application of engineering principles to the problems he has had to solve."

Under the able direction of Mr. Savage, the Headquarters at Denver grew very rapidly. In 1939 when

we visited the Bureau, the staff at the Headquarters exceeded seven hundred. Specialization is carried to the extreme limit. Besides legal and geological sections the engineering work is divided into seven sections. Materials Testing and Control, Dam Engineering, Office and Contract Engineering, Electrical and Mechanical Engineering, Canal Engineering, Technical Engineering, Co-ordinating Section. Each section is further subdivided into several branches. Each branch is placed under a specialist, whose business is to examine and criticise and, if thought necessary, to conduct model experiments on the designs, submitted by the Design Branch proper.

No design is prepared in the field. All projects, large and small, are dealt with by the appropriate specialist, on data supplied by the field officers.

Besides free use being made of the well equipped laboratories belonging to the universities and other organizations, there are several laboratories attached to the Bureau. These laboratories are in charge of junior engineers, the work being carried out according to the directions of the Chief Designing Engineer.

It is the considered opinion of the authorities in the Bureau that the apparently swollen staff at the Headquarters makes for economy in the long run. Prior to the introduction of the present system, America too (as happens in India to-day) suffered from expensive and ill-conceived experiments in the field.

Since his return to the Bureau, the volume of work turned out by Mr. Savage has been stupendous. The total cost of about 55 major dams designed by him comes to $624,470,000. This figure does not include numerous small diversion dams constructed in connection with canal systems. In addition to the dams which Mr. Savage has designed, he has also supervised the

designing of hundreds of canals, and thousands of structures on irrigation projects constructed by the Bureau during the last 20 years, ranging from All-American Canal, the largest ever constructed in U. S. A. and costing $38,000,000 down to the smallest lateral structures, costing a few dollars each. The total cost of such works designed under his direction, exclusive of dams, amounts to $119,207,000, bringing the grand total of all works designed by Mr. Savage to $746,677,000. These cost figures—impressive as they may be—represent only a small part of the economic value of the projects in the future development of the country.

Mr. Savage has an exceptional ability for making new and unusual application of fundamental engineering principles. There is the trial load method of arch dam analysis. The inconsistencies that were known to exist between the actual measured stresses and deflections in constructed dams and the values computed by all former methods have been satisfactorily explained. The old inconsistencies between theory and fact have disappeared. The development of the method of arch dam analysis in its entirety, together with related studies and the splendid verification of its accuracy by model testing and the measurement of the actual deflection and stresses in the finished structure under load, form a remarkable record of achievement in engineering design.

Then there is the artificial cooling of mass concrete. The construction of the Boulder Dam with the necessity of producing a monolithic and crack-free mass of concrete of its enormous dimensions, in a construction period of two years, necessitated the development of a practical method of artificially cooling the concrete to remove the setting heat and accomplish the same amount of cooling shrinkage of the mass, without cracks, in a few months time that would otherwise have taken

over 100 years. This was done by providing both radial and circumferential contraction joints, and circulating natural and artificially cooled water through pipes embedded at accurately predetermined intervals throughout the concrete mass.

The researches and studies entailed in developing and controlling the thermal, elastic and volume change properties of cement and concrete is another notable record of engineering accomplishment. Closely associated with the foregoing, there was carried on the development and perfection of new and improved methods of pressure grouting contraction joints, and the development of special cements with favourable thermal properties.

Here are some of the unique problems that Mr. Savage has encountered and solved : The Kittitas Division main canal includes a river crossing rivaling the Hudson river crossings of the New York City Water Supply, but of much larger capacity; the Gooding Division Canal passes through 75 miles of recent lava fields; the All-American Canal passes through many miles of drifting sand hills and crosses numerous cloud-burst washes. The needle-valve design on the Boulder Dam Project has attracted widespread attention.

But it requires something more than high technical ability in the abstract, to direct effectively the work of the great organization, such as, the design unit of the U. S. Bureau of Reclamation.*

"It requires a memory stored with the results of past experience, catalogued and pigeonholed and ready to be drawn upon for application to problems of the moment.

*Mr. W. F. Durand, Engineer Proiessor of Stamford University.

"It requires a suggestiveness of mind, permitting quick selection from the wise domain of engineering principles and practice, as best applicable to the problem in hand.

"It requires a capacity for analysis and for quick seizure on the controlling features and factors of problems, as they present themselves.

"And again, it requires a high capacity for organization and administration, in dealing with the human elements of a great organization, in order that they may be made to function together as an efficient unit."

All of these in a distinguished degree, and add to that a most lovable personality and character responsive to the highest ideals of life—this is Savage.

Difficult as it would be to picture Denver without the Bureau of Reclamation, it would be even more difficult to think of the U. S. B. R. without Jack Savage—a *Yogi* in the true sense. He is well worthy of the ideal of the engineering profession.

XIII

ROOSEVELT—THE MAN

In the previous chapter I have written about one true *Yogi* in America. That was from a personal contact. Yet another *Karm Yogi* of the same calibre and certainly of a bigger stature lives in the United States of America. He is Roosevelt, the President of the United States of America. His personality may be a decisive factor in the present world struggle for supremacy between dictatorship on the one hand and democracy on the other. In this chapter I propose to throw a few side lights on the life of this great man who commands respect throughout the world.

What is the secret that makes him feel fit for the third term of a job, even one term of which ruined and broke so many before him? Through almost 8 years of the "cruelest" job in the world, President Roosevelt has kept an excellent digestion and the ability to sleep like a child. His eight hours sleep during the night failed him as little on the day when he discovered treachery of one of his friends as on the occasion when an attempt was made on his life in Miami. When, before his nomination, some of his friends anxiously remembered that the Presidency had used up stronger constitutions than his, his wife gave the answer : "If his sickness couldn't kill him, the White House won't."

He is said to be an optimist. He does everything that he believes is humanly possible. Faced with a given situation he is all for trying some line of action. Impulsive, even impetuous, he wants to know immediately what can be done. He then moves as far as he can " to improve his world, to bring peace, to do whatever may be the job ahead of him." Having done this, his conscience is clear. He has trained himself not to worry about what he cannot alter and he has a serene trust in his own judgment.

He loves the struggle without trembling about the victory. After a genuinely calamitous session he was found to pick up a book and in it at once forgot everything. Nothing can move him to despondency, renunciation or regret. In his struggle he does not worry too much about philosophy.

Notwithstanding his infirmity he carries himself in a most natural way. He dresses as inelegantly as he finds comfortable; preferably in an old sweater or boating jacket. " It illustrates the man that he should be better dressed on his farm than in the White House." When his wife literally forces a new tie on him or his outraged sons remove from his wardrobe an old suit which he inherited from his grandfather and still wore as President, he revenges himself by poking fun at the young Beau Brummells of Washington. He spent a whole festive evening satirising a Washington club where he had to appear, much against his will, in evening clothes, lest the Anglo-maniac founders should turn in their graves. With all the shrewdness of his actions, he finds it difficult to believe that the other person is not a gentleman and even to-day he is amazed when some one betrays him.

"Roosevelt has as little intention of living in the hovels of the poor as Lincoln had of marrying a negro woman." He is fond of taking a holiday with his millionaire friends and of laughing with them, even though a week later, he may take away 60 to 80 per cent of their incomes through new taxation. He does not hate them. He only wants to use them in his own way.

He does not hate money as long as he is its master and not its slave. In spite of the thousands of voices around him, he refuses to let himself brood on pictures of destitution. He does not burden himself with sympathy for the individual destiny. His understanding of want and his eagerness to raise the income of the underdog has not diminished his joy of life. In the midst of the most engaging state work he is capable of detaching himself and turning to his hobby of stamp collecting.

Surely this would be the true spirit of a follower of Gita. On one occasion Emil Ludwig wrote for his information in English the following phrases from Goethe:

"My belief in immortality springs from my concept of activity. For if I have gone on labouring without rest until the end, nature is in duty bound to provide me with another place, when my body is no longer capable of carrying on here."

Emil Ludwig writes that Roosevelt was deeply impressed and seemed to accept this philosophy of life for himself.

This is the secret how a rich man became the friend of the poor and how a half paralysed man, the leader of a gigantic movement. His life will continue to

provide an ideal even after his social measures have become out-dated.

Mr. Franklin D. Roosevelt was born on January 30, 1882. He was the only child of his parents. Even at the early age of three years and two months he showed the trait of keeping his own objective clearly before him. When he was returning from his first trip to Europe, a very heavy sea—almost a tidal wave—hit the ship, carried away the life-boats, washed several men over board, extinguished the fires in half the boilers and filled all the cabins with water. Young Franklin was tucked in upper berth in the state-room to keep dry. He had accepted all the events of the day with a philosophical cheerfulness and seeming indifference to their gravity until he looked over the side of his berth and saw that his pet toy, a jumping jack, had fallen into the water, and was being scuttled as the ship rocked.

"Mama," he cried, "save my jumping jack!"

When he was five, Franklin was given two puppies on the understanding that he alone was to feed them and care for them. When he was seven, he was given a pony upon similar terms. From early in life, he was given spending money in small fixed amounts and taught to account for it to the cent.

At the age of 11, he was given a shot gun on the distinct condition that he would not shoot during the nesting season nor kill more than one pair of each variety. In two years he collected about 300 specimens and mounted them himself. His grandfather rewarded his attainments in this direction with a life membership in the Natural History Museum in New York. Roosevelt still refers to the occasion upon which the certificate was presented to him as the "greatest thrill" of his early life.



Franklin D. Roosevelt.

McKinley, a distant cousin of his. He was admitted to the bar in 1907.

In 1911 circumstances pulled young Roosevelt in a struggle that early showed his mettle. The Democratic Party had to nominate a member for the United States Senate. Many of the legislators had benefited in the campaign from the generosity of Sheehan and Sheehan's friends. But Roosevelt thought that Sheehan was not the kind of man for that exalted position. He opposed Sheehan's nomination. Everything was done to intimidate young Roosevelt and his friends. When intimidation failed he was given the temptation of judicial posts and other promotions, all in vain.

He showed his independence in his differences with his uncle. " I differ with him on a great many questions, but they are the differences between men who are both seeking to do the best for the public good. Only he is doing it in the Republican way, while I am trying it in the Democratic way. It is a difference in method growing out of fundamental differences in party faith, that's all."

Roosevelt has always emphasised that more people should take an interest in politics ; it is everybody's business.

In the Wilson regime, Roosevelt was offered the post of Assistant Secretary of the Navy. He readily accepted it and became almost indispensable to his boss. He brought about some very important reforms in the much corrupted Navy Department. One was the abolition of the " plucking board " which for years had retired a certain number of still capable officers of high grade to permit others to be promoted. The new plan substituted the principle of promotion by competitive methods for promotion by seniority.

Roosevelt was responsible for the introduction of more businesslike methods of buying supplies for the Navy Department and this was a vital contribution to the preparation of the Navy for the World War.

For many years, naval supplies of various sorts had been bought through brokers. "Men with one room offices and one stenographer sold everything from a paper of pins to structural steel." They would buy the supplies after they had obtained the orders from the Navy Department ; if they found they could not make a profit they would default their contracts. This was a very widespread and grave evil. In its place responsible concerns were induced to come under a system of open competitive bidding.

Another business tradition of the Navy was the system of "emergency purchases." In emergencies the various sub-divisions of the Navy, naval districts, separate yards, docks and stations had the power to make direct purchases of supplies. Gradually emergency had come to have so elastic a meaning that large quantities were being bought piecemeal at retail rates in local stores. When the first "emergency" supply had been exhausted, a second "emergency" would be declared. Roosevelt set out to abolish the practice. He put all articles previously bought under the "emergency" system on a standardised budget basis and let out wholesale contracts after wide advertisement.

Putting the Navy on a businesslike basis was not quite an easy job. When bids for armour plate for a battleship in 1913 were opened, it was found that they were identical to a penny. There were only 3 firms which were equipped to make heavy plate. Secretary, Navy Department, demanded an explanation of what he asserted was obviously collusive bidding. The companies replied that it had been customary for the Navy Depart-

ment to distribute all work of this sort among the three at the lowest bid. The bids were thrown out and advertised again. The bids received for the second time were identical in amount. Roosevelt brought in a British steel magnate and the representatives of the American firms were told that the entire contract would be sent abroad if they did not reduce their bids. The result was that the American firms came down. Contracts for coal and fuel oil were similarly handled.

Roosevelt set out to stop the practice among police court judges in certain States of sentencing boys to service in the Navy. "The Navy is not a reformatory or a penal institution." He declared, "the recruiting of undesirable persons will not be accepted. I am sorry that there are judges in the country who have so reflected upon the Naval service of the United States."

The Lusitania crisis stirred the war spirit in America. Roosevelt continued to preach the need of a larger battle fleet and to condemn the "idiocy" of school textbooks that "try to make the American boy believe he can lick ten Englishmen or ten Germans and that the United States have been gloriously victorious in every war it has waged."

It was no joke to bring the American Navy up to the required level of preparedness. For many essentials it was no longer a question of breaking combinations but of obtaining sufficient amounts at any reasonable price. Here again Roosevelt rose equal to the occasion.

In the fall of 1916, the high grade Chilean nitrate available in the American market was in the control of one company. Roosevelt protested vainly against the price demanded. The Navy's specifications were exceedingly elaborate and this company was the only one which would undertake to meet them at that time. Prowling around, he ascertained that the Chilean

Government had reserves of very fine nitrates, upon which it was drawing for its own use. Blandly ignoring the rule that a foreign Government should be approached through the State Department, the Secretary Navy went to the Chilean Embassy and made a direct appeal for five million pounds of nitrate for the United States' Navy. . . . . The Chilean Government agreed to furnish the required amount of nitrate, but pointed out that the specifications were so elaborate that they could give no guarantee. "We will waive all Specifications" came the reply from the Secretary Navy. "This is not a matter for specifications but of honour between two friendly Governments. Just provide us with what you consider good nitrate."

The Naval experts stood aghast and predicted that the nitrate would either blow up the powder plants or be unfit for fire crackers. Orders were issued that the nitrate be tested immediately on receipt and a report made by telephone. When the word came, it was that the nitrate was "the finest even shipped to the United States."

In another case Roosevelt later confirmed "It is perfectly true that I took the chance of authorising large expenditure before the Congress had actually appropriated money. I felt confident that the Congress would pass the emergency appropriation."

He added that he had broken enough regulations and laws to put him in jail for "999 years".

The Naval officers and business men, who came in contact with Roosevelt during the war, have many stories which depict him as a ruthless cutter of red tape. To men in whom he had confidence, he was always willing to give a free hand. Often he gave blanket orders for the construction of barracks and camps over the tele-

phone, and started them through regular channels afterward.

As the Navy began moving overseas, the need arose for a ship cantonment for three thousand men in New York City. A site was found and the following day June 28, 1917, oral orders were issued to go ahead. The plans were started on June 29, ground was broken on July 5, the work practically completed on August 4 and breakfast served for sixty-eight hundred men on August 11. The cost was four hundred thousand dollars. Two months later the contracts for the job were officially awarded.

Every situation that arose found Roosevelt with a plan for meeting it. When there was a shortage of field glasses, he launched the "Eyes of the Navy" campaign, the appeal for binoculars, spy glasses and similar optical instruments for which the owner received one dollar and the promise that his property would be returned. More than fifty thousand pairs of glasses were received. Probably somewhat to the surprise of everyone, nearly all of them were duly returned to their owners.

As Governor of New York, he had to deal with a bigger issue, whether the two million, two hundred thousand horse-power of the St. Lawrence River should be developed by private interests or by a public agency. Over this the two parties had been deadlocked, for years. An issue in every recent election, it had been especially prominent in the later campaigns. Several influential persons were hankering for a practical monopoly in the power field covering the state of New York. In his first message to the Legislature, which literally astounded the public, was his proposal that the water power issue be taken "out of politics."

"It is intolerable that the utilisation of this stupendous heritage should be longer delayed by petty

squabbles and partisan dispute. Time will not solve the problem, it will be more difficult as time goes on to reach a fair conclusion. It must be solved now. . . . . .

"I should like to state clearly the outstanding features of the problem itself. First it is agreed, I think, that the water power of the State should belong to all the people, and be transferred into usable electrical energy and distributed to them at the lowest possible cost. It is our power; and no inordinate profits must be allowed to those who act as the people's agents in bringing this power to their homes and workshops. If we keep these two fundamental facts before us, half the problem disappears.

"There remains the technical question as to which of several methods will bring this power to our doors with the least expense. Let me here make clear the three divisions of this technical side of the question.

"First, the construction of the dams, the erection of the power houses, and the installation of the turbines necessary to convert the force of the falling water into electricity.

"Second, the construction of many thousands of miles of transmission lines to bring the current so produced to the smaller distribution centres throughout the State; and

"Third, the final distribution of this power into thousands of homes and factories.

"How much of this shall be undertaken by the State, how much of this carried out by properly regulated private enterprises, how much of this by some combination of the two, is the practical question that we have before us."

Thus Roosevelt converted the water power issue into the more appealing slogan "cheap electricity."

Later he suggested the creation of a quasi-public Board of Trustees to undertake the development and to finance it with its own securities issued against contracts for the sale of the power, which would limit the transmitting and distributing agents to a fixed return on their actual investment and assure that the benefits would accrue in lower rates to small consumers.

On the eve of a campaign for re-election he emphasised: "If there is corruption in our courts, I will use every rightful power in the office of Governor to drive it out, and I will do this regardless of whether it affects or may affect any Democratic or any Republican organization." Governor Roosevelt urged on many occasions the need of re-vitalizing the machinery of Government by the choice of better legislators. In a radio address during the Assembly campaign of 1929 he said :

"The theory that an Assembly man is an unimportant public officer and is unable to decide any question for himself is one which perhaps has been unduly encouraged by those who wish to have always an obedient party vote ..... If he has no function but to count as one vote on a roll call in order that the necessary majority may be secured ; if he is merely to vote 'aye' when instructed or 'no' when instructed, without any mind or will of his own, then it would be far wiser, far cheaper, and exactly the same for all practical purposes, if the voters of each county instead of voting for a person would vote as to the leader of each party and send the proxies of their districts by mail.

"This is an era of experts. We need expert farmers, expert merchants, expert professional men, as well as expert lawyers in our legislature. I hope each year will see an increasing diversification of occupations listed in our legislative membership. ..... "

His paralysis did not stand in his way in the contest for the highest honour that his countrymen could confer upon him. In four months during his election campaign for the Presidency he covered 17,000 miles and delivered some thousand speeches.

"Civilisation is a tree" said Roosevelt, towards the close of his campaign, "which as it grows continually produces rot and dead wood. The Radicals say 'cut it down', the Conservatives say 'do not touch it. The Liberals compromise. Let us act so that we lose neither the old trunk nor the new branches."

As President, Mr. Roosevelt had to face one of the greatest economic crises in America. All banks including the Federal Reserve Bank had closed. Unemployment was rampant in the country. Drastic action was required to stabilise conditions.

He called Congress into an extraordinary session. Congress gave him extraordinary powers which no President had ever enjoyed before except in time of War. The speed with which things moved kept the nation in a state of excitement. The country read that the new emergency banking law had been worked out in twelve different versions, and that the final one was adopted only half an hour before it was presented to Congress. There was no time to have it printed, but Congress adopted it in thirty-five minutes. Where Committees had to sit for months, important laws were, during the next few weeks, adopted in a few hours. All these things were without precedent.

On March 10, Roosevelt asked Congress for discretionary power to balance the budget; an hour later for a reduction in payments to the veterans and in salaries of Federal officials. On the 11th, he demanded the passage of a law for the saving of $500,000,000. On

the 12th, he picked up the radio and spoke direct to the people on the reopening of the banks.

In those some fourteen days enactments followed each other for farm and unemployment relief. "Congress must stay in session until the whole social programme has been carried out."

Some twenty new agencies were created for the development of the country. The State undertook to control production and lend money to the farmers, to find employment for millions in State projects and to centralise more and more departments of the Government. These objectives were sought and in part attained through heavier taxes on the rich, but not one citizen was deprived of his rights and not one act was committed in contravention of the constitution or morality of the State.

Faced with an international financial crisis he had the daring to deflate the dollar and a few weeks later he even declined to stabilise the dollar at all. He created a stir when he declared that the banks should not pay out gold and later when the Congress legislated that the gold certificates of the nation, that is, its promise to redeem a certain piece of paper with a certain quantity of gold, would no longer be so redeemed. Nor was anybody permitted to remove gold from the country ; on the contrary, Government bought up and stored away as much gold as possible.

Roosevelt's reforms brought the farmer, after one year, a greater quantity of goods than he would have been able to purchase with the harvest. Simultaneously huge shipments of agricultural produce streamed from the land to the unemployed in the cities and in this way the two unfortunate classes in the country came to each other's aid.

Equally was he successful with the big businessmen.

Neither their Christian brotherly love, which they heard affirmed every Sunday in church, or more comfortably at home over the radio, nor the standstill of their factories, had been able to achieve what Roosevelt's simple arguments did. They realized that it was only necessary for all of them to raise wages simultaneously in order to create more purchasers for their goods. They understood then that the period of luxury production was over for them, as was that of speculation for the luxury buyers ; that they themselves could prosper only if prosperity obtained for everyone, and not for one class at the expense of others. Never did he use in his popular addresses threats against the rich or an accusing or self-righteous tone.

Some question the effectiveness of Roosevelt's remedies, others accuse him of spending billions on the unemployed only in order that he be elected again. This, however, is not upheld by those who have watched him closely. He knows very well what his earning power, as a writer or an editor will be when be becomes a private citizen again, to say nothing of the earning power which his wife has established for herself.

Even Roosevelt's enemies would admit the incorruptibility of his regime. One of his greatest political assets is said to be the fact that no special interests can be seen lurking behind him.

The President's day begins between 8-30 and 9 with a leisurely breakfast in bed. His secretaries and intimate advisors are likely to be present and perhaps a member of his cabinet. Appointments begin at 10 or 10-30 and go through to 5 or 5-30 with a lunch conference with trays brought to the President's desk.

Late in the afternoon the President takes the only exercise in which he is permitted to indulge. He goes

for a swim in the artificially heated indoor pool which the nation built for him in the White House by public subscription. Customarily the swim is followed by a thorough massage. The paralysis which crippled the President did not destroy all the muscles of his lower body and the healthy muscle groups are given special attention.

If there are no social functions in the evening, he may have further conferences in his study, or he may read or work at his stamp-collection.

He eats heartily and enjoys his food. After supper he sits down to look at some light movie, at any rate not a serious one ; then he continues to work upstairs far into the night mostly alone.

He writes his speeches himself. Occasionally he would take ideas, phrases, jokes, even prepared speeches from the brilliant men around him; his final manuscript may bear the imprint of four or five hands besides his own.

Four thousand letters arrive at the White House every day, and even when all the sorting has been done, there still remain about a hundred, which, if only in digest form, must go through to their addressee. Thirty women secretaries sit all day long filing, sorting, and digesting, for every letter that makes any sort of sense must be answered.

In his office, as everywhere else. Roosevelt is always a gentleman and a cordial host. He smiles winningly, talks engagingly, listens energetically, with a frequent nod of his head and a " yes " to indicate that he is following the subject or to encourage his caller to talk freely. He deftly steers the conversation away from dangerous ground. People emerge from his office happy and swelling with good feeling. Often they

have forgotten what they came for. During the early months of his administration, political leaders towing candidates for jobs came out wreathed in smiles. Sometimes later they would come to the sober realization that they had obtained no commitment.

Roosevelt is a consummate politician, who knows very well that consistency is a rare luxury. Consistency in his objectives is what Mr. Roosevelt himself has claimed.

Mr. Roosevelt likes complete pictures as he calls them and one of his great assets is that he can get a complete picture in his own mind while his opponents, whether in Government or in politics, are still enmeshed in details.

Mrs. Roosevelt's versatility and her energy are no less than her husband's. When Roosevelt was the Governor of New York, she ran the Todhunter School for Girls in New York City and was there for two and a half days every week; she continued to teach American History and the current events of nineteenth century literature. The remainder of the week she gave to, being an official hostess, making speeches before women's organizations, writing for the magazines and the Women's Democratic News, which she formerly edited, keeping two sometimes three houses in running order, knitting, and looking after the family. She found time to ride horseback occasionally and to keep a supervising hand upon some furniture shops at Hyde Park. Mrs. Roosevelt never lets heavy duties submerge her personal charm.

Between husband and wife there is obviously a deep loyalty. They have common ground in their great simplicity of manners. They have resembled each other in seldom being alone without being busy. They have in common a practical unstylised way of dealing with people.

The informal simplicity of the Roosevelt family is indeed striking. "It is a household of people who are always busy, yet always at ease, where there is always room for another person at the table, where strange combinations of people find themselves thrown together and seem to enjoy it."

Roosevelts know the value of a penny. They have been through the vicissitudes of cotton and peaches. The children, one is informed, were brought up to make exact accountings of their expenditure. Yet Roosevelt does not worry too much over the children. "They are free and twenty-one," he once said of his children and their public pursuit and happiness. "There does not seem to be anything I can do."

His able biographer Lindley wrote of him when he was Governor in New York, "You arrive at the Executive Mansion at 5.30. An impressive delegation is just coming out. You go inside, the tea table has just been trundled into the study and Mrs. Roosevelt is pouring. The Governor, two unidentified persons who look as if they might be old friends from Hyde Park, a secretary and a stenographer are there. They all get their tea. Sergeants Miller and Gennerich, who are attached to the Governor's staff, drift in and get their cups."

Now the social battle of the Governor has extended to the forty-eight States. The natural manner of life of this family has become a model for the entire country, somewhat to the horror of Washington snobs.

It is not uncommon to find Mrs. Roosevelt on a Sunday evening in the house making scrambled eggs in a chafing-dish in the dining room, while a dozen alert, energetic, but also very jolly people—high officials, friends of the Roosevelt sons, young students—sit around and help with the plates.

What is the White House itself? Not splendid enough for a castle, but more striking than a private residence ; too official for a villa, but too familiar for a ministry ; the partician aspect of this house, in which the head of a great family governs, is at once almost princely and yet private[2]. One would say that here lives the father of a country, for that he does not have to be afraid, like a king or a dictator, is evident from the open site of the house. Every citizen and every foreigner can go through the wide open gates of the park and stroll around as far as the white steps.

There is a complete absence of uniforms all round. "In the place of sentinels for ever marching to and fro under the windows of all the castles, I saw here only happy little squirrels playing on the lawn as if to confirm the idyllic character of the whole. There is nothing to indicate that from this place a people is governed which has the second greatest fleet in the world and whose troops decided the issue of the World War. The European learns with envy that it is possible to guard the honour of a state and the security of its chief without military coxcombry and pretentious pomp."*

Far and wide only one soldier is to be seen, and he is the politest general going on earth. He greets the passing citizen with raised hat equivalent to almost saying "How are you this morning? Do excuse me for being on horseback while you are on foot."

The President drives himself. It is enough to compare the familiar expressions of the greetings and the complete absence of straight rows of soldiers, in order to perceive the essential difference between two men and two systems, one based on force, and the other on consent.

---

*Emil Ludwig.

To see the real *Yogi* in Roosevelt, one must see him again in his ancestors' home in the Hyde Park. Here in this country house of his fathers, which does not belong to the fifty-eight-year-old President but to his old mother, he is still just the son. Here in Hyde Park, the President works in the smallest room in the house, a nook which is completely filled by his desk and a couple of bookshelves. If we recall that it was here that the life of the spoiled boy began, and that he used to do his home-work in the room where he now prepares his addresses to the nation, we shall fully realize, how Roosevelt seems to be happy in the possession of power, just as he was without it.

---

*This chapter is based on the excellent biographies of Roosevelt by E. K. Lindlay and Emil Ludwig and a sketch by Marquis W. Childs published in the "Reader's Digest".

XIV

AIDS TO UNEMPLOYMENT

When Roosevelt took over the reins of Government in March, 1933, he was called upon by his nation to solve the problems of the greatest economic crisis that his country had ever experienced. This crisis was due to several causes.

The condition of the farmers had grown bad as a result of mechanisation and even more so as a result of the war. In 1790 farmers constituted 90 per cent of the population. Even 50 years ago the farmer consuming his own produce could, in an emergency, be independent of purchases. To-day with the tractor replacing the team of horses and electric power replacing the mill wheel, he needs money for buying a good proportion of his requirements. Aided by the machine and power, about one third of the population can produce to-day all the necessities required by the whole of the United States. Moreover the war had transformed America from a debtor into a creditor. When America had to pay $500,000,000 annually before the war, Europe would collect it in grain, cotton and machinery. When after the war America had to collect interest on her loans, Europe refused to buy. American exports of farm produce fell from two thirds to one third. Large areas in other countries were brought under cultivation. Every country tried to become agriculturally self-sufficient. Thus more and more farmers became superfluous. Their power for purchasing manufactured goods dropped, which in turn stopped a large number of factories. This resulted in throwing out of employment millions of workers who did not have the money

to buy even the bare necessities of life. This again reacted on the farmer. There was nobody to buy even as much produce from the soil as they sold previously. The result was that it created an absolute deadlock.

With the best will in the world more than 30 million workers in the United States could not find any work to do. Even though America was the last country to be hit by the depression, the reaction was greater than elsewhere. The purse-proud Americans had no previous experience of such a long, continuous depression and hardship. The morale of the nation could not stand even a couple of years' starvation and hunger. Louis Adamic in his "My America" has drawn a harrowing picture of the days of depression. "In some cases," he writes, "it came to my notice the whole family had developed anti-social and criminal tendencies. In extreme cases, entire families whose heads formerly were respectable and successful working men now co-operated in making their living expenses by thieving. . . . . ." Large numbers of men and women took to vagrancy and there was a much greater tendency to crime.

The standard of living automatically dropped. From his personal experience, Louis Adamic writes : "When families were evicted they sometimes moved into one room flats in the cellars or into cheap furnished room houses. I came upon families of 7, 8 or even 10 living in one room flats. They slept on chairs and on the floor, in bath tubs (if they had them) and over sinks."

Sweat shops grew up and children of 12 to 16 were made to work there as much as 10 to 12 hours a day for a small wage. Some employers took advantage of the tremendous pressure of unemployment of these young boys and girls and made them work hard and long in their mills and factories.

Depression very adversely affected the physical condition of its victims. Quoting from Louis Adamic again "as a result of financial and related difficulties, men in their prime became victims of psychic and physical disorders which led to sexual impotence : Physicians, whom I met in home relief work, informed me that depression-induced-impotence was common in men under 40. This was true not only of jobless workers, but of businessmen whose fortune had been affected by the slump. One doctor in close touch with the situation maintained that many separations and not a few suicides and wife murders during 1930-31 had been due in part to the fact that economic frustration made men sexually inadequate."

A certain amount of charity was doled out by the rich but this only led to a further demoralisation. Louis Adamic writes:

"I am reliably informed that during Christmas Week whole families, man, wife and 2 or 3 children lined up in front of free food stations run by various emergency organizations where large baskets of food were given away; and then after each of them had got a basket, they went round the block, drove off in their own automobiles or in taxi cabs."

This unemployment and depression was not due to the niggardliness of nature. The vast potentialities of the production of real wealth remained unimpaired. There was no lack of food or manufactured goods in America or for that matter in the rest of the world. The complaint was that there was too much, there was over-production. Side by side with this poverty, took place an actual destruction of food-stuffs. Crops were not gathered and were allowed to rot in the fields ; fruits were left on the trees and many articles were actually destroyed.

The country as a whole remained rich. She owed money to no other country and her only debt was to her own citizens. Hundreds of millionaires were still in evidence in New York. The great banker Pierpoint Morgan still sported his private luxury yacht which is reported to have cost £6,000,000.

Even before his election as President, Roosevelt had expressed his views on many occasions regarding this perplexing problem of the hour. In 1930, speaking on Armistice Day to the American Legion in Boston, he had stated:

"First there is the warfare against the grim tradition that every man must look out for himself; that he must fight against his fellow-men from the cradle to the grave, for his bread, for his livelihood, for everything that makes life worth living, no matter how handicapped by misfortune or circumstances, and that he must wage this fight without a helping hand from the State to aid him, if he falters; or to rescue him from absolute starvation, if he fails. To the State he must give his allegiance, his life even, if called in its defence, and a yearly tithe of all he earns. And yet, according to this ancient theory, from the state, he must not look for help in case misfortune, utterly beyond his control, should overtake him in his declining years."

Speaking at a special session of the Legislature in August, 1931, he emphasised the responsibility of the State for solving the problem of unemployment. He said:

"What is the State? It is the duly constituted representation of an organized society of human beings, created by them for their mutual protection and well-being. The State or the Government is but the machinery through which such material aid and protection is achieved. . . . .

"One of these duties of the State is that of caring for those of its citizens, who find themselves the victims of such adverse circumstances as make them unable to earn even the necessities for mere existence without the aid of others. That responsibility is recognized by every civilized nation.

"In broad terms I assert that modern society, acting through its Government, owes the definite obligation to prevent the starvation or the dire want of any of its fellow-men and women who try to maintain themselves but cannot.

"While it is true that we have hitherto principally considered those who, through accident or old age, were permanently incapacitated, the same responsibility of the State undoubtedly applies when widespread economic conditions render large numbers of men and women incapable of supporting either themselves or their families, because of circumstances beyond their control, which make it impossible for them to find remunerative labour. To these unfortunate citizens, aid must be extended by Government—not as a matter of charity, but as a matter of social duty."

Later, in 1931, Roosevelt proposed the creation of a twenty million dollar fund for reducing unemployment by an increase of 50 per cent in the State personal income-tax. In justifying the use of the personal income-tax Roosevelt uttered, "It is clear to me that it is the duty of those, who have benefited by our industrial and economic system, to come to the front, in such a grave emergency, to assist in relieving those, who under the industrial and economic order are the losers and the sufferers. I believe their contribution should be in proportion to the benefits they receive and the prosperity they enjoy."

On taking office as President early in March, 1933,

Roosevelt took swift and decisive action. He asked the American Congress for powers to deal with the banks, industry and agriculture. The Congress, quite unnerved by the crisis and influenced by popular feeling in favour of Roosevelt, gave him these powers. He became practically a dictator, though a democratic one, and everybody looked to him for immediate and effective action to save them from disaster. He did act with lightning rapidity and within a few weeks he had shaken up the whole of the United States by his various activities. The main steps taken by President Roosevelt to relieve unemployment were :

1. Persuaded America to go off the gold standard and allowed the dollar to fall, thus reducing the burden on debtors.
2. Raised a huge loan of 2 billion dollars, issued to relieve agriculture by subsidies.
3. Enlisted 300,000 workers immediately for forest and flood control work.
4. Granted $800,000,000 for unemployment relief.
5. Set aside the enormous sum of about 3 billion dollars which was to be borrowed for public works to promote employment.

All these enormous sums were to be obtained by raising loans. Roosevelt's whole policy was and is to increase the buying power of the people ; when they have the money they will buy and the trade depression will automatically lessen. It was with this object in view that he took in hand huge schemes of public works, where workers could be employed and earn money. It was also with this object that he tried to raise the wages of the workers and lessen their hours of work. A shorter working day would mean the employment of more people.

This attitude was in direct opposition to the usual attitude of employers during times of crisis and depression. Almost invariably they try to cut down wages and lengthen hours of work, so as to cheapen their cost of production. Roosevelt said that if they were to resume mass production of goods, they must give the masses the capacity to buy. Child labour was abolished (child age for this purpose being fixed at 16). "More pay, less hours of work," has been Roosevelt's slogan. Each separate big industry was induced to draw up codes fixing higher wages and pledging itself to carry them out. If it failed to draw out a suitable code, there was a gentle threat that the Government would do it. Individual employers were asked to sign pledge forms, promising to raise wages and shorten the hours of work of their employees.

Roosevelt's measures, at once, opened work for the unemployed and simultaneously improved the conditions of the farmers by increasing the demand for agricultural produce.

Before I write at length about the Civil Conservation Corps and the public works, I may mention a minor relief that was given to artists. Up to this time a few millionaires bought paintings with big European reputations at great expense. No sooner had Roosevelt taken over office than he had representatives of the various arts collected to organize them and set them to new tasks. He discovered 5,000 painters ; he also found thousands of musicians, whom the talkies and radios had deprived of their livelihood ; the number of actors and writers was even higher. Now it was a question of discovering new forms, which should bring this talent to the people and the people likewise to this talent. Roosevelt's Government founded the first American state theatres, which played throughout the country for 55 cents admission. Small towns which had never

seen an art gallery could start one now. The average American who had never owned an original painting could buy one now for very little money. New orchestras, which the Government put together from unemployed musicians, toured the country. Others collected the music and dances of the old Mexican, Red Indian, and Spanish periods. Post offices and hospitals, state buildings and clubs were adorned with paintings. Starving authors were organized to produce, in line with their education, better school books.

The Civil Conservation Corps was organized with a two fold object: firstly, to find immediate work for untrained and unemployed young boys above 19 years of age ; secondly to train such boys so that after a short period in the CCC camp they are able to make an independent living.

Three hundred thousand of them were sent into the forests, because they needed few machines and little training to undertake the reforestation of devastated areas.

Hastily set up as a relief measure, the CCC has now been continued by Congress to July 1, 1943. Even after this date the likelihood is that CCC will stay.

The boys are allowed to stay in the Corps for a maximum period of two years, but the actual average has been only nine months. They work eight hours a day, five days a week. The pay is $30 a month, of which not less than $22 is allotted to dependents, or, if there are none, paid to the enrollee when he leaves.

Most of the CCC boys are given more and better clothes than they ever had before. The Corps eats well, so well that a youth will usually gain 8 to 12 pounds in three to six months.

In the CCC camp some of the boys learn surveying, contour mapping and running a transit, and subsequently obtain municipal surveying jobs. Some boys learnt accounting, or dramatics. Thousands enter nearby night schools.

Most of the CCC work is part of a long range conservation programme, planned by the Departments of Agriculture and the Interior or by State agencies, and there are enough projects already proposed to keep the Corps busy for 30 years.

The CCC has planted 15 trees for every inhabitant of the United States; made truck trails or minor roads which would reach four times around the earth. Forty-two thousand bridges have been constructed, 4,000,000 erosion-control dams built. Their conservation work includes historic restorations, wild-life refuges, roadside improvement, swamp drainage. The boys have put in 9,000,000 days of forest fire fighting and fire prevention. Forty camps were assigned to a clean up job after the new England hurricane. Thousands of distressed citizens facing floods have thanked God when the CCC trucks rolled in.

Several Americans are now of the opinion that C C C should be made an integral part of the American educational process. This knocks the childishness out of youth and gives it toughness without callousness. It develops the qualities of courage, obedience and leadership in the same way as military experience does.

By far the most important measure to relieve unemployment was the decision to undertake the construction of large public works. The construction industry has always played an important part in the States, second only to agriculture in its vast volume.

It constituted the greatest single force that made the United States the leader of the world in providing necessities, conveniences and luxuries for its people. No one can accurately estimate how many men looked to the construction industry for their livelihood, but the best available figures range from 5,000,000 to 8,000,000 human beings. The tragic drop in the volume of construction during the depression period turned a considerable percentage of these people out into the streets. Roosevelt sought to remedy this by starting the construction of big capital works.

Amongst the main public works may be mentioned the numerous works constructed by the Bureau of Reclamation topped by the gigantic Grand Coulee Dam which alone is estimated to cost $180,000,000 and works on the Tennessee Valley. The total cost of Tennessee Valley dams will be about half billion dollars.

On the Grand Coulee Dam the maximum enrolment at one time reached the figure of 7,000. Behind these men actually working on the construction of the dam, were other battalions. They worked in forests providing lumber ; in mines and steel mills providing pipe, piling, reinforcement bars, etc.; in foundries and factories making machinery and equipment ; on farms producing the food for these workmen ; and for railroads which pour the products of all their labours through the funnel and into the Grand Coulee Dam.

An amazing number of things go into the construction of a dam. They range from tacks to dynamite caps, from divers' helmets to turbines, and they are gathered from almost every locality within the United States. It gives millions of man-hours of work at

prevailing wages throughout the country. It sent an army of men marching back to work each day since the dam was started, back to work at the job of building a better America.

The average rate of wages at the dam works out to be about 90 cent per hour. Employment is limited to a maximum of 8 hours per day and 40 hours per week.

In the first 37 months of construction operations, the contractor paid out $18,615,617 in wages. In the first 15 months after beginning operations, the firm spent for equipment and supplies $11,413,628. A large part of the wages of workers was spent on the purchase of staple foods, clothing, automobiles, household equipment, and miscellaneous requirements, thus bringing relief both to the farmer and the factory workers.

In all specifications of public works there are three important clauses. Firstly, definite preference is given to articles mined or manufactured in the United States. Each bidder is required to submit a list of articles of foreign make, which he proposes to use, for scrutiny by the Secretary of the Interior, in order to permit a determination whether such articles are mined or manufactured in the United States, in sufficient and reasonably available commercial quantities, and are of satisfactory quality, and if insistence on this provision would unreasonably increase the cost. If any contractor is found not following the provisions with respect to domestic materials, he is debarred from getting any other public contract for a period of 3 years. This provision prevented money from going out of the country and ensuring employment of the maximum number of workers in the country.

The second important clause is that no Mongolian

labour should be employed under the contract. This ensures that sufficient work will be available to white American labour.

By a third clause the contractor is bound down to a schedule of wages, prescribing minimum rates per hour to be paid for the various items of work covered by the specifications.

There are critics who think that President Roosevelt is facing an impossible task and that he cannot succeed. One thing, however, is definite; Roosevelt's programme brought about real improvement in business sentiments and morale. As, however, economic recovery took place, big business men became more aggressive and resisted Roosevelt. The Supreme Court declared some of the effective clauses of Roosevelt's "New Deal" Acts as opposed to the constitution and, therefore, inoperative.

The fact remains that although about 20 million persons depend to some degree upon the Government for support, there are still 11 million persons that are still without jobs.

The relief issue again faces the Congress, with a demand for $1\frac{3}{4}$ million dollars to finance the Works Progress Administration (WPA) and other spending agencies. On one point, there is general agreement that the Government should furnish work for persons unable to find private jobs. Certainly relief work is preferable to dole, because the tax-payers at least get something for their money. At the same time the "reliefers" can retain a certain amount of self-respect and keep in condition to handle private jobs when available.

There is, however, a storm of discussion about the wages to be paid. New dealers argue that low pay, as compared with the scales prevailing in private

industry, reduces the workers' buying power and thus is a deterrent to a community's recovery. They also contend that it would enable the WPA to compete unfairly with private industry for construction enterprises. On the other hand, if the prevailing wage scale be paid, workers have no incentive to seek private jobs. They are content to remain on the Government payroll, as it gives them comparative security and relatively light work. Furthermore the records show that many WPA projects—apparently through inefficiency—cost much more than comparable private work, whatever the wage scale. Advocates of this school of thought say that if work-relief must be continued, the sensible course would be to emphasize its temporary nature and to pay subsistence wages only. The WPA is still a palliative—not a permanent remedy.

A line of action was suggested by Steward Chase in the September 1939 issue of "Atlantic." Under the heading "Behind the Budget" he advocated "shift your public works programmes as rapidly as possible from an emergency status to a permanent status. Move from the WPA kind of thing to PWA kind of thing, firm durable projects, well engineered, assisted by first class mechanical devices, at rock bottom costs. If the public works cylinder is here to stay, it should be of the best possible quality. There must be men big enough to see their profession in dynamic terms, not in the rigid formulas of a past generation."

If Roosevelt is elected* a third time, he will no doubt pursue his policy. Even if he fails and the trend of future events proves his methods to be in the wrong,

---

**Since the above was written, he has been re-elected.

his errors will be pardonable. "He who fails in big purposes," said Goethe, "still acts more admirably than he who succeeds in carrying out what is dictated by small purposes."*

---

*Emil Ludwig.

XV

BILL OF RIGHTS FOR BOYS

The steps taken by America in building the nation of to-morrow are worthy of India's attention. It is realised that what the boys and girls absorb and are taught to-day will make the America of twenty years hence. Both Government and the private citizen consider it a solemn duty of this generation to concern themselves to a greater and greater extent with the affairs of the young people.

This movement for the organisation of boys and girls particularly during the period of transition into jobs is not new to America. The Fascist countries recently devoted themselves to this organisation as never before in history. The Fascist programme emphasizes the systematic examination of youth. It undertakes to build up their bodies and give them sports and recreation, to find their occupational bents and to give them encouragement and faith in the future. With it all, the Fascist Government incessantly pounds the Nazi and Fascist mode of thought into these children. They are built for regimentation, for submission and for mental and moral subjection to their masters. The egotism of race superiority is emphasised. The right of criticism and self expression is denied. Their concept is that every individual is simply a molecule in a mass directed by the State. All this has a military complexion of the deepest dye.

That is not what is aimed at in America. They lay emphasis on building the sense of voluntary action, on developing personality, and creating a sense of personal

responsibility. "We want to build for moral discipline, not regimentation. We want to build for the dignity and character of the individual. We want education in truth, not propaganda. These are the foundations of free men. And just as Fascists build up their boys to support a Spartan State, we want to build up our boys to support a truly representative state."

In America education is all free up to and including the Matriculation classes. The high schools are big institutions where more than four or five thousand students may be attending at one time. There are no separate girl institutions or colleges. The system on the whole works well. The older generation was generally satisfied that no evil resulted from this system.

Out of the 52 weeks in a year, one week is designated by the President of the United States by proclamation for directing concerted attention to the improvement of mass education and to create enthusiasm for the correct type of education.

During this Education Week, public meetings are held, cinema demonstrations and school exhibitions are arranged. They all remind the people of the importance, the need and problem of a good school system. The Education Week is an annual event throughout the Republic. The Directors of the Education Week programme keep clear of empty academic discussion of mere philosophic abstracts. They try to correlate educational problems to the actual life of the nation. Each day in the week is set apart as a day for stressing some particular aspect of education, which is nation-wide rather than local in its significance. For instance, Monday is given for American Constitution; Tuesday, Patriotism; Wednesday, School and Teacher; Thursday, Conservation and Thrift; Friday, Know Your

School; Saturday is given to Community and Health; Sunday to God and Country.

The practical benefits to the nation of the Education Week are tremendous. The school has become a strong factor in unifying the heterogeneous elements in the United States.

Some of the cardinal points emphasized in the 7-day education campaign have been summarised by an educationist :—

1. American school is America's first line of defence in times of peace.
2. If American schools fail, America fails.
3. Six per cent of the population of the United States is illiterate.
4. Education is a debt that the present owes to the future. Shall we pay the debt we owe to future generations?

A European critic once gave a curious definition of an American university. He said, it is a sporting community where malingerers have an opportunity to study science and the classics.

A Chinese* once remarked that America is a country of Ph.D's. An original American graduate student could very well write a thesis for a doctorate on a "Time and Motion Study of the Varieties of Handshaking," reviewing it in the approved fashion, as regards pressure, duration of time, humidity, emotional response and so forth, and further studying it under all its possible variations as regards sex, the height of the person concerned, the condition of the skin as affected by professional work and social classes, etc. With a

*Lin Yutang.

few charts and tables of percentages thrown in, he would have no difficulty in getting a Ph.D., provided he made the whole thing sufficiently abstruse and tiresome.

From our contact with some of the college graduates and conversation with the university professors we did not form this impression of American universities. There may be some thrill-hounds in colleges, who, relegating their studies to the background, are primarily out for "good time." Such characters are not infrequently taken up by a fiction-writer and turned into a "good seller." The picture drawn by the fiction artist however has one colossal defect; it lacks one principle in that it does not give a fair representation of the complete college life.

The majority never lose sight of the deep-lying purpose of college education. They are on the campus to improve and to advance. They lead hard lives of study and research. To them education is a brilliant adventure, a grand voyage of discovery. The Indian student in America has earned a good reputation, through his unflagging zeal for college work and through his "straight path". He is generally well spoken of by his associates and professors.

Now and then the question is raised whether college education is necessary. Instances are quoted of big business magnates or leading professionals who did not possess any college diplomas. "Will those 4 years be worth the time, money and energy spent? Is it fair to expect the old folks to meet such expenditure, if it only buys fun and social status, or should those, whose future does not actually require college reading, go out and get going?" Such questions occasionally agitate the public mind.

On the whole, America expects that the future

leaders of the nation in state craft, science, art, business functions and philanthrophy should come from the college population. If all the college graduates are not outstanding leaders in their communities, they are expected to have acquired broader vision, greater imagination and deeper appreciation of the finer things of life. As a matter of fact American college graduates do furnish, at present, nine out of every ten leaders in all branches.

The American university is not simply an examining machine as it is in India. In America the universities are all teaching universities. Great emphasis is laid on a close contact between the university and the community.

The university professor is not supposed to be a thinker in a vacuum. The scholar who prides himself only on his academic dignity and cold aloofness is held to be a liability rather than an asset in the vital educational process.

The American universities encourage an appreciation of the dignity of manual labour. It is not uncommon to find college boys mostly freshmen working as shoe-blacks and pulling carts loaded with earth, and to see others cleaning the cow-sheds and working in the gardens.

In some of the places we saw school students spending a part of their time in preparing meals for their fellow students.

Even more important than schools and colleges are "Boys Club". In 1939, there were 326 such clubs established in 184 cities in over 36 states. Their combined assets exceeded 20 million dollars. The deficit on operating the individual clubs was met by community chests, by special associations and private gifts. These

clubs are mainly devoted to the so-called 3 million pavement boys, whose parents are too poor to afford them means of constructive joy during their daily life.

Herbert Hoover, Chairman of the Board of the Boys' Clubs of America, stressing the necessity of these clubs argued the case thus "It cannot be denied that in our modern civilization there are some unoccupied and dangerous spaces in the daily life of certain groups of boys. Those spaces come about in this manner: A boy spends a number of hours in school. He spends a considerable amount of time in the beneficient occupation of eating his meals. He spends an uncertain amount of time washing himself behind the ears. And there are certain hours which he spends safely in bed. But between these spaces of positive occupation, there are some hours of everyday, and still more on Saturdays and Sundays, when he is on the loose. In that spare time, if he is to grow and thrive, he must be outdoors or must be doing something or other out of his parents' sight. And it is with this particular spare time that we are concerned. This spare time is more dangerous in crowded districts of the cities than anywhere else. We have vastly increased the number of boys per acre, especially in the congested parts.

"It is from these boys that the large number of criminals of to-morrow will form. Such boys having little chance of matching their wits with nature, they are likely to try to match their wits with the policeman.

"The youth is endowed with dynamic energy and an impelling desire to take exercise on all occasions. His primary instinct is to hunt in a pack, and that multiplies his many devices in geometrical proportion to the size of the pack. He is a complete self-starter, and therefore wisdom in dealing with him consists in knowing each hour what to do with him next. He presents

not only joy and happiness but also paradoxes. He strains our nerves, yet he is a complex of cells that teem with affection. He is a part-time incarnation of destruction, yet he radiates sunlight to all the world. He gives evidence of being the child of iniquity, and yet the total of him makes a great nation. He is filled with curiosity as to every mortal thing. He is an illuminated interrogation point, yet he is the most entertaining animal there is."

Government and public bodies provide such boys with magnificent facilities for education and with fine protection for their health ; the rest is aimed at by the Boys Clubs of America. These clubs seek to shift him in his spare time to a place, which he will like and which will at the same time develop his character and moral stature. They seek to give him opportunity to find his occupational bent. They stretch his imagination and give him the opportunity to find constructive joy in substitution for destructive joy. They help to develop the qualities of sportsmanship. For in sportsmanship lie the fine qualities of loyalty to the pack, competition with zeal yet without bitterness, under self imposed restraints that cover the right of others. Herein is the training in fairplay and morals.

Herbert Hoover has framed a Bill of Rights for Boys which runs :—

"1. Like everybody else, a boy has a right to the pursuit of happiness.

2. He has a right to play, so that he may stretch his imagination and prove his prowess and skill.

3. He has right to the constructive joys of adventure and the thrills that are part of an opening life.

4. He has a right to affection and friendship.

5. He has a right to the sense of security in belonging to some group.
6. He has a right to health protections that will make him an inch taller than his dad.
7. He has a right to the education and training that will amplify his own natural bents and fit him into a job.
8. And I would add another right—the right to accept the obligations of citizenship in a democracy—perhaps the greatest right a boy, or anyone for that matter, can have.

The Boys Club movement is but one of many constructive efforts which America makes in giving a free privilege to the poorest born and the least privileged boy of becoming a policeman or an editor or even a banker. America aims to preserve and develop his talents, his personality, his honour and his virtue, so that these young boys may render it a greater America when their turn comes.

XVI

UNIFORMITY IN DIVERSITY

"America is a tune; it must be sung together"

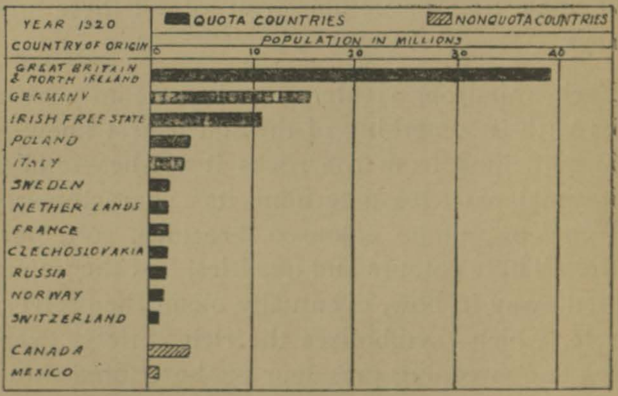
—Gerald Stanley Lee.

A motion picture, "The River", recently produced by the Federal Government, fascinatingly presents a scene with raindrops pattering on fallen leaves in the Western Pennsylvania mountain-side, water rushing through the gashed gullies of Tennessee farms; then another in far-off northern Minnesota, where a stream trickles along, so small, that it is hardly visible; next a hurrying brook in distant Montana; and then the rain falling in torrents on Middle West prairies grass. Other scenes reveal the gathering of these tiny drops, rushing water, trickling streams, hurrying brooks and torrential down-pours as they speed through woods and fields, past villages, cities, homes and industrial plants, to join other waters in small rivers, then in greater rivers and finally in the majestic Mississippi, fruit of all these myriad journeys.

Each raindrop, rivulet, brook, stream and river carries with it something of the soil it first knew—leaf-mould, silt, lime from the rocks it washes—and these infinitesimal particles determine its character—crystal clear, clay or gumbo coloured, brackish, soft, pure or impure. These colours and qualities, less the impurities cleansed away in flow, eventually blend themselves into a whole, which symbolizes the rich variety, vast resources and sweeping grandeur of the United States of America, uniquely strong among the nations.

"How like the making of the Mississippi river has been the making of this great America! For three centuries, the courageously aspiring have been flowing hither in endless streams to join the varied, vast, inspiring stream of life called America. Individuals, one by one, then families, shortly followed by groups, then shiploads and finally in hordes, they have come to our hills and valleys, our mines and industries, villages and cities." Thus writes an American.*

People came from the steppes of Russia, the plains of Greece, sunny Italy, colorful France, conglomerate Austria-Hungary, pageant-like Central Europe, teeming Germany, thrifty Holland, Belgium and well-poised Scandinavia, dour Scotland, stubborn England, distinctive Wales, eerie Ireland, troubled Spain, friendly Canada, strange Japan, old China and struggling Mexico. Each individual of each nationality brought from the soil he first touched something of its spiritual chemistry, colour, quality and character. The heterogenous element of the White population is best illustrated by this diagram :



*David Hinshaw in "We Americans".

And not all of them came 300 years ago. During the 117 years from 1820 to 1937 more than 38 million persons left their old homes to build new ones in America. About 10 millions came in the period from 1820 to 1880. The final stage of immigration began in 1880, when the industrialization of America gained headway following the Civil War.

To the above add 330,000 of the Red Indians, descendants of the original natives of the continent, and 12 million negroes, descendants of slaves brought originally from Africa. Indeed America is not merely a nation, but a teeming nation of nations.

The fusion of the different races has been taking place at somewhat varying rates. In certain cases it has been practically automatic. An Englishman or a Scotchman hardly ever felt as a foreigner in America, for the many reasons that go even deeper than the mere similarity of the language. The Irish, on the other hand, have remained aloof in the large American cities, forming their own communities with their own tendencies and individuality. The Dutch, the German, the Scandinavian have also been assimilated at a somewhat slower pace.

One critic has humorously remarked that in the American melting pot, in certain cases, a high temperature is needed for fusion and even after a prolonged heating an insoluble residue is liable to remain. Americans, however, claim that America is a great melting pot, in which they compound a precious metal—the metal of nationality.

It is really a marvel how these heterogenous elements of the American population, differing in language, national origin, economic status and political traditions, are fusing together as one nation. The secret lies in Americans forgetting their differences and rejoicing in

their unity. "So long as men are able to control the hate and envy which God left in their hearts, when He made them, no doubt, because He wanted no angels on earth, it will continue to be the story of America. Ours is the long pull, for which, as Carlyle said, social and political reformers need the time-sense of a geologist. A year, a decade, even a generation are too short to reveal the full truth in social evolution."

The policy of the State has a potent influence in facilitating the assimilation of the heterogenous elements of the population. The State recognises no difference of race or religion. All are American citizens and are equal in the eyes of law. There is no question about providing statutory safeguards for the Italian, the Polish, the Hebrew, and the Negro minorities.

Non-official agencies are at work in the same direction. The press too ignores all racial and communal distinctions in their reports of daily occurrences. The press does not consider it its duty to indicate whether a kidnapper was a Pole, Italian or a Greek. Even though there is a feeling that the most desperate crimes are committed by a low type of immigrants from certain parts of Europe, there has been no suggestion of putting any restrictive action on members of any community as such.

Schools and colleges too are a great unifying force. Inter-marriages between the members of various nationalities have gone a great way, indeed, in wiping out the basic differences among the immigrants. The father may be Polish, the mother Italian. The son may get to know an Irish girl, who perhaps had a French grandfather ; he falls in love with her, marries her and raises a family. This produces a typical American racial mixture.

Individuals rival each other only in their love and

praise of America. Wherever we went—in trains, in restaurants, on works—Americans of every status would eagerly ask, what do you think of our country? A man of about 30, who migrated from Central Europe at the age of 10 would call himself a cent per cent American. Even the "despised" negro is second to none in his claim of being an American. A young negro lad recently wrote:

"We American negroes desire a place in America's life as other races have. We desire to be playwrights, doctors, actors, bankers and to fill whatever position we feel best suited for. We know the way is hard. We glory in getting ahead. We shall succeed. We are young Americans. Black, it's true, but Americans nevertheless. Our elders failed. We won't."*

The American patriot claims that in America the Protestant, the Jew, the Catholic and the free thinker, each of them has done far more than wear American clothes, eat American food and use American slang. Here they discovered and claimed a new spiritual inheritance ; found, clung to and established a new concept, which places only the Creater ahead of man, which believes that self-respect and individual human dignity out-rank even the State in importance. Here they have proved over and over again that the most precious heritages of mankind are above creed, color and boundaries ; that while the finest fruits of human nature grow in every clime and ripen in every nation, they flourish most abundantly, where the soul is free.

It is claimed that the American character partakes of the warm heart of the Irish, the uncompromising integrity of the Scotch, the lyric quality of the Welsh, the bull-dog determination of the English, the sturdiness of the Dutch and Danes, the courage of the

*Lewis W. Ware writing under 'Thirties' in September, 1939 issue of Atlantic.

Belgians, the fairness of the Swedes and Norwagians, the thoroughness of the Germans, the quick intelligence of the Swiss, the alertness of the French, the artistry of the Italians, the unshakable faith in a life beyond of Central Europeans, the charitable services and idealism of the Jews, the yearnings of the Russians, the beautiful, satisfying spirituals of the patient Negro, and the Red Indians' sixth sense of caution. " These and other precious qualities, create an American type, in which our pride can be well placed."

Thus then the mighty stream of American life, one hundred and thiry million tiny individual drops, immigrants or children of immigrants, Americans all, flows on, purifying itself, leaving bench-marks for the historian as it merges all its precious freight of diverse characteristics until, at some point in the endless cycle, " Americans will forget all their differences and emerge as one civilization ".

" The conquest of the British Isles by Romanised Norsemen ", wrote an American recently, " brought us that interesting compromise afterwards known as England, while the compromise between three score different European nationalities is gradually producing something which we ourselves hardly understand, but which a thousand years from now will appear in all text-books as the civilisation of North America."*

The Catholics in the United States have strong religious sentiments, but when it comes to economic and political affairs, they think in terms of the country as a whole. This may have a lesson for India. Her need to-day is for a religion, which would unite instead of dividing. In the modern world there is no room for narrow personal attitudes nor for narrow religious conceptions.

*Hendrick Willem Van Loon in "Red Book" for September, 1939.

I was struck how Muslim Egypt is proud of the past culture of that ancient country. Enormous sums of money have recently been spent to dig out remains of a civilisation, which existed thousands of years before Egypt was converted to Islam. We were told that the present Egyptian Government was seriously thinking of digging out an old temple from a big heap of debris, on which a mosque has been subsequently built. This mosque, however, is older than one hundred and fifty years and thus claims the protection of the Old Monuments Protection Act.

In the words of Sir Feroz Khan Noon,* " India has a record of civilization which is as long as that of any country. . . . . Recent archælogical discoveries made in the Indus Valley suggest that the civilization of this part of India was of the same order as contemporary civilization in Sumer and Egypt.

" Towns well laid out, with houses of red brick occupied by traders and craftsmen, have been unearthed. We can still admire their excellent drainage systems ; their magnificent public baths ; and their exquisite carved seals and figures. Authorities on archæology are of the opinion that such towns as Harappa and Mahenjo-daro were at the height of their prosperity between 3250 and 2750 B.C. . . . . . .

" From the time of the Aryan invasion of India, the story of our civilization is wholly continuous and undeniably of a very high order, if somewhat different in type from the civilization of Europe and the New World. . . . .

" Our knowledge of Indian civilization from the advent of the Aryans to the present time is based on our literature. The Sanskrit religious books of the Indo-

*In "Canada and India!"

Aryans are unique in the world for their antiquity ; and some must have been composed not less than 4,000 years ago, while the two great epic poems, Ramayana and Mahabharta, although less ancient, are still far older than the Iliad and the Odyssey of Homer. . . . . .

" . . . . . Excavations in Taxila have revealed paved streets, baths in private houses, and wells which are over 2,000 years old. The whole system of building and town-planning would do credit to any of the modern countries of the East or Eastern Europe. Sir John Marshall mentions that he has also discovered glass tiles used in bathrooms, which were introduced to China, after they had been known for some time in India.

" . . . . . . The paintings in the Ajanta Caves, the sculptures of Gandhara and Sanchi, the bas-reliefs of Amaravati, etc., are cultural possessions, which any country in the world would be proud to claim as its own."

There is no reason why every Indian should not feel proud of her ancient culture and civilization in the same way as Sir Feroz Khan Noon does—equally proud of Asoka and Akbar the Great, of the ancient temples and the beautiful Taj Mahal.

Those who are seeking to unite India in one national life may face difficult problems, but certainly not greater than there existed in America. If America has achieved, out of many diverse religions and racial elements, a national consciousness and has developed such national life as it has, then surely India with the advantages of an ancient culture and of a long history common to all its people should be capable of realizing a common national life.

XVII

CASTE IN AMERICA AND IN INDIA

One of the questions frequently put to us in America was about the existence and working of the caste system in India. The average American when putting this question forgets that even today, in some of the Southern States, there are separate waiting rooms for the white and the coloured. In one of the restaurants at Vicksburg, Mississippi, we were shown by a white waitress to an adjacent room. When we opened the door of the room we came to know the reason. There were separate rooms in the restaurant for the white and the coloured. Our reaction to this treatment in "free" America was that we went without food that day!

By the Jim Crow Laws, which are rigidly applied, the Southern negroes are ordered to travel in separate coaches and to sit only in the back of the trams. These laws go even further and reserve certain quarters of the town for the whites and forbid the blacks either to rent or to buy houses in that locality. There are whole counties which the blacks may not enter and they cannot even leave the trains passing through. Humiliation extends to the trivial details of daily life. No matter who he may be, the negro must go into a house by the back door, for no white servant would allow him to enter otherwise. Be he a bishop or a doctor, a lawyer or a wealthy farmer, he is never addressed as mister.

Even in matters of ordinary civic rights, the same injustice prevails. For example, in South Carolina the share of education funds for the negroes amounts to

only 11 per cent while their population is 51 per cent. In municipal administrations all the money is spent on the quarters reserved for the whites; in these quarters the streets are swept; there are pavements, gutters and arc lights. "But 200 yards away negroes live in hovels with cesspools instead of sewers; there is total darkness in their streets at night".

Against such oppression the negro is helpless. No negro has ever been appointed or elected to a public position. He has no political representation and has no way of having his grievances redressed. There is no court of appeal where he can go to seek justice. In fact, the whites take it on themselves to apply their self-made laws without resort to courts. A negro was once lynched by a furious mob in a theatre, because he dared to sit in a part reserved for the whites. The best element of the community often take part in such atrocities, society people, high officials, and even judges.

Thus the problem of the coloured races in the States is even worse than the problem of the so-called untouchables and depressed classes in India. There is, however, a good deal of resemblance between the two. Both had their origin in the arrogance of the conqueror. Both were enforced to preserve the purity of blood of the conquerors, who believed themselves to be of a superior race. Reasons for the difference in the treatment of untouchables in Northern and Southern India are very similar to the reasons for the difference in the treatment of negroes in Northern and Southern States of America. The negroes live as much apart from the whites in America in everyday life as the untouchables do from the upper classes of Hindus in India. In the social, business and cultural life of America they have either no place or only a very inconspicuous one.

The history of the negro in the United States is

so well-known that it hardly needs repetition. As a result of the Civil War slavery was legally abolished. The negroes with the aid of northern politicians obtained political control in several Southern States.* The old slave-owners were ruined and as if this was not enough, they were asked to endure the supreme humiliation of being ruled by their own slaves. This brief period, when the negroes suddenly came to power, is still remembered by the Southern whites, as a set of frightful years. In their pride of power, the negroes were responsible for certain acts, which explain, or, at any rate, are used as a pretext for the many atrocities subsequently perpetrated on them. The Ku Klux Klan started in 1866 was the first attempt at liberation from this "black" rule. Gradually the whites regained control of the local Governments and by arbitrary legislation deprived the negroes of the advantages that had been won for them in the Civil War and which had been guaranteed by an amendment to the Federal Constitution. They were again relegated to a state of semi-slavery and ever since the Southern whites have concentrated all their efforts on re-establishing conditions, as if the Civil War had never taken place. The latter claim that the negro has been degraded by slavery and is not susceptible to education. Kept at the bottom of the ladder, he can be useful to the community but when given authority he becomes a dangerous brute that must be crushed. So long as he is content to remain in his place for ever without trying to rise, they will admit that they are fond of him individually and that he has a great charm.

*In South Carolina and Mississippi negroes are over ..	50 per cent
Louisiana, Alabama & Georgia ..	37 per cent
Akansas, Florida, North Carolina & Virginia between ..	25 & 37½ per cent
Texas, Tennessee, Delaware & Maryland between ..	12½ & 25 per cent

The negro, on the other hand, frets under the traditional suppression. "Are we not men," the best of them will ask. "We are conscious of our merits. Why are we treated as infectious pariahs?" W. E. Burg Hardt Du Bois, a penetrating negro writer, maintains that the negroes can equal the whites in everything, yet they are being mercilessly persecuted by the most civilized Christian nation on earth. There is no place on the globe where they can escape and live in peace.

What then is the solution ? This puzzles America's leaders of thought. They realize that it will be impossible for the whites to keep 10 million men of another race under their yoke for ever. Howevermuch the Southern whites may say, with a grim smile, that tuberculosis and pneumonia may perhaps be the solution of the problem—the destruction of a race is also an illusion.

Is fusion possible ? In all the Southern States and in several others as well, mixed marriages are prohibited by law. If either of the parties to a marriage has a black grand-parent, he is legally classed as a negro. A union without marriage between a negro and a white woman is almost impossible, for some secret organization soon informs the couple that they must either separate or their lives will be in danger.

The intermingling of the two races is, however, going on. This can be proved by a comparison of the colours of the primitive Africans with that of the civilized negroes of America. In the old plantation days the masters used to take mistresses from among their slaves and even now there are many middle class men who keep a coloured woman and have children by her. One of the complex aspects of life in the South is this indescribable attraction of the negress. This may soon create further castes and sub-castes in America as it did in India.

Slowly but surely the ideals of decency and justice to negroes are winning their way. Every year sees fewer lynchings. Slowly the negro is gaining in education and winning victories in every field of human endeavour. There are already more than 100 Negro banks and above 400 journals published by or for the negro.

The advanced wing of negro no longer wishes to be patted on the back and patronised by the sentimental whites. They have emancipated themselves from their inferiority complex. They are, by their own initiative and energy, building their success upon the firm foundations of their own integrity. This may indicate a trail to the depressed classes in India. About caste in India, there is, however, a lot of misunderstanding and exaggeration in the mind of an average American.

Several theories have been advanced by scholars of the ancient Hindu period, regarding the origin and growth* of caste in India. The most important factors in the development of caste were the racial struggle between the fair-skinned Aryans and the dark-skinned non-Aryans, the division of labour leading to the formation of occupational classes, and the tribal differences, especially among non-Aryans, which survived the spread of a common Aryan culture. These were aided by the superiority claimed by the priests in all primitive societies, by the natural desire to follow heredity in occupation with a view to keep trade secrets in particular families and improve the skill in a particular art by generations of systematic efforts, and by the inherent disinclination of a man to marry outside his own fold,

---

*For a very authentic treatment of the subject, the reader is referred to "Origin and Growth of Caste in India" by N. K. Dutt, M.A., Ph.D., Publisher, Kejan Paul, Trench Trubner & Co., Ltd., London, 1931.

especially when there are social or tribal differences involved.

Some of the seeds of caste came from the original Aryan stock. "But while they failed to grow elsewhere, they found a more fertile soil in India because of the absence in Vedic and Epic times of any strong political power wielding supremacy over a large area and existing tribal differences and enforcing uniform laws and customs, because of the cosmopolitanism of Indian religion, which failed to draw a line of distinction between Indian and foreign and which was concerned more with the preservation of social order than with the development of a unifying creed; because of the spirit of resignation with which the different classes submitted to their fixed avocations and positions in their supreme belief in the Law of Karma, and because of the abnormal development of Brahmanical rituals ensuring the position of the Brahmans as the custodians of religion and culture."

The clergy, the knighthood and the commoner people of Europe in the middle ages answered in some respects to the Brahmans, the Kashatriyas and the Vaishyas of India. Peculiar conditions in India helped the development of caste instead of nationalism as in Europe. There was little colour distinction between the Aryans and the non-Aryans in Europe. In India it was the colour question which was at the root of the Varna system ("Varna" means complexion or colour). That class which retained the utmost purity of colour by avoiding intermixture naturally gained precedence in the social scale. According to the description given in the Mahabharata, the Brahmans were white, the Kshatriyas red, the Vaishas, because of a large absorption of black blood, yellowish like the Mulattoes of America and the Sudras black.

In the earlier stage there were no definite restrictions in intermarriage between the different classes of the Aryan race. As the non-Aryans or Sudras came into contact with the Aryan people in general either as hated enemies or despised slaves and not as friends or fellow-citizens, and as the number of slaves captured or retained for service was as yet small, the colour question, the fear of the whites being tainted and swamped by the blacks, did not become acute. Hence there was no necessity for stringent regulations in this period to prevent intermixture between the Aryan and the Sudras. The colour and culture differences existing between the two races were a sufficient barrier against regular unions between the white masters and the black female slaves producing cross-breeds.

With the extension of Aryan influence and rule over a vast land out of all proportion to their number, the policy of extermination or wholesale slave-making of the native Dasa or Sudra population had to be changed and a new policy of accepting Sudras as subjects or serfs was adopted.

But with the change of policy there appeared the danger of the conquerors being submerged, both racially and culturally, by the overwhelming black population. The more was the contact established between the white and the black, the greater was the necessity of maintaining purity of blood,—a question which did not worry the Aryan conquerors in the Valley of the Indus. The policy of extermination was followed by one of depression and social exclusiveness. What the Sudras gained politically they lost socially. This question of purity of blood, which at first concerned the relationship between the conquerors and the conquered, gradually reacted upon the relations between the different classes of the conquerors themselves and began to poison the whole structure of society.

As the Aryan conquerors advanced towards the east and the south, they met some savage tribes, very low down in the scale of civilization and with revolting habits and standards of living. Evidently there was no love lost between the natives of the plains and the aborigines of the more inaccessible regions, who had presumably been driven there by the Dravidian conquerors. The division between the two sections of the conquered population, and the loathsome habits of the second group, necessitated the creation of a new order, the fifth varna, for them and raised the question of defilement by touch. This question, too, like the other question of purity of blood, originated in the relation between the conquerors and the conquered and gradually spread its infection through all the divisions among the Aryans themselves, in the course of centuries, till the present rigidity in matters of inter-marriage and inter-dining was attained.

In the Rig-Vedic period, in spite of the division into classes or castes of a mainly occupational character, the Aryan community retained some homogeneity in ordinary manners and habits. During the following period, special rites were prescribed for the guidance of the different castes. The rules were often trivial and innocent looking, with very little touch of invidiousness about them and were, therefore, probably not much opposed at the time of their inception. The fact of different classes conforming to different habits, and rules of etiquette, widened the gulf between the different castes even among the community of the Aryan conquerors. Thus a Vaishya habituated to his prescribed rules of conduct would certainly feel ill at ease, if he were promoted to a higher rank and required to adopt a different standard of rules. Centuries of usage made the barriers practically insuperable.

Even though the Priest class tried to assume a privileged position, it appears that their intentions in making rules for the guidance of themselves and the rest of the society were promoted by high and honest motives. There were no such acute differences at that time as we find to-day between the different castes of Hindus. Even the memories of the racial struggle between the Aryans and the original inhabitants had died down by the time Manu formulated his code (between 200 B.C. and 200 A.D.).

Manu assumed that, in one way or another, the whole population of the world was descended from the four original varnas. Thus even foreign natives like Chinese, Greek and Scythian were taken to have been Kshatriyas at one time. The Indian religion and social system were cosmopolitan and not national, the prevailing conception being that there was only one eternal religion, the other religions of the world being only varieties or corruptions of the same, and that all the peoples of the world formed one community, divided into four varnas. Unlike other countries, the Indian tribes and classes did not revolt against the hierarchical order or against the nature of their occupations however mean. This was due to the belief that the work and status of every man was according to the inexorable Law of Karma, or action in previous life Thus even the most wretched man with the most degrading occupation remained satisfied in the belief that the miseries of his present life were the result of his sins in his previous life, and that if he, submissively, performed his caste duties in this life, he would be born in a higher caste in the next life.

The above gives a clue to the success of Hinduism in keeping a firm hold upon the heterogeneous elements of the Indian population and its wonderful power of

absorbing alien races and cultures. The Brahmans would not regard any foreign religion as antagonistic to their own. They would say to the foreigners that their religions were only varieties of the one eternal religion, Brahmanism, and that they belonged to one or other of the four varnas, into which the whole of mankind was supposed to be divided. Those who would not care at all for Brahmanical usage were called Malechchas and were let alone. No force was applied. Unconsciously and imperceptibly the alien barbarians would be tempted by the unfailing bait of higher social status to give up their old practices and conform more and more to the Brahmanical usages. It was only when it met the rigid creed of Islam, that the position was changed.

"Perhaps no other religion in the world but Hinduism would have survived the ordeal of the continued Muslim invasions. In many senses, however, its effect was disastrous. It put an end to all chances of internal reform and it hardened and exaggerated the purely defensive and materialistic side of Hinduism. Whether with the final absorption of Budhism, the time would have been ripe for shedding the archaic crust of Hinduism, it is now impossible to guess. There would seem to have been indications in the rising cult of Vishnu, that men's minds were reaching out towards a kindlier incarnation, a loving God, compassionate to human weaknesses. But all this crumbled under the direct attacks of Islam upon the whole tabernacle of the faith. Any slackening of the doctrine of Karma was prohibited by the necessity for using the terror of re-birth as a check on apostasy, compulsory or otherwise. And for similar reasons, in almost every direction, there was a stiffening of faith and practice.

"The bonds of caste grew more rigid. On all sides

Hinduism ossified in self-defence. Speculation on the eternal verities flourished, for adversity often stimulates the philosophic mind. And some of the masterpieces of Hindu literature belong to these hard times. But the social structure of the cardinal doctrines of the system were far more rigid when the British replaced the Mughal than they had been 600 years earlier."*

Those very means, which so long acted like the hands of an octopus, turned against themselves and began to tear their own vitals. The pity was that even the Muhammadans were brought under the influence of caste. The Indian Muslims of to-day are not simply descendants from the Afghan, Arab, Turkish and other invaders but a large percentage of them are from Hindu converts, who embraced Islam and passed it on to their descendants.

The foreign critic makes, generally, too much of the restrictions on inter-marriages and inter-dining in Hindu India. In the Rig-Vedic (before B.C. 1400) and Brahmanic (B.C. 1400—800) periods there was little restriction between the various Varnas of Aryans themselves.

It was with the advance of hygienic knowledge about cleanliness, that a good deal of discrimination arose. By the time of the Sutra period (B.C. 800—300) a revulsion of feeling had been slowly taking place against meat-eating. The Brahman philosophy acknowledged the existence of souls and senses in all animals and when according to the later theory of transmigration of souls, there was no certainty that the soul of one's dearest relative would not enter the body of a cow or a goat after death, naturally the heart would quake at the idea of slaughter. But a more important factor in

*Lord Meston in his "Nationhood in India".

favour of vegetarianism was that in the Indian climate animal food was not so much of a necessity as in many other parts of the world, while the abundance of grains, fruits and vegetables so easily grown in India gradually weaned the Indo-Aryans from their meat-eating habit. I was struck how this experience was being repeated in the States. The European settled in the Southern States is finding that a preponderance of vegetables in diet is more suited to the climate of the country and his menu is gradually changing in favour of more vegetable and milk products. An American friend pointed out to us, with great pride, an important hygienic improvement that had recently been introduced on some of the recent engineering works. Paper tumblers were provided so that each man drank from a separate tumbler. He was surprised when I informed him that even an illiterate man in a most backward Indian village followed this hygienic practice.

It may be stated that in spite of the rigidness of the caste system, members of various castes have lived in perfect harmony. It was the institution of the census from the last quarter of the 19th century that gave rise to a vast literature dealing with the characteristics and functions of castes mostly by foreign writers, who suffered from lack of proper background to understand with sympathetic, interest how the Indian social institution of caste, simple and normal in the beginning, gradualy received a peculiar stamp which distinguishes Hindu India from outside world.

Thus Hindu society, unchanging and unchangeable as it seems at present, has grown from primitive beginnings and has moved on with the times in agreement with certain recognized laws of evolution, and many customs, which now appear as strange and alien, have gradually taken their present shape through changed

circumstances and new influences. A proper realization of the above fact may help in effecting yet another change so as to bring this much maligned institution into line with the modern conception of democracy and individual liberty.

Advocates of the caste system may claim that it has preserved the mechanical skill and dexterity of the artisans, that it has developed and fostered art and industry, that it has preserved Hindu culture and civilization and that it has contributed to the spirit of contentment and resignation which mark the outlook of the people. But the caste, as it exists to-day, is the worship of an idol ; the life which it once symbolized has disappeared. To-day it makes for social disruption and lack of solidarity. It has split up the community into isolated and even conflicting units. It has a deadening effect on the individual and social life. It leaves no scope for the development of individual genius and individual tastes. In the caste-ridden society each man's lot and functions are unchangeable. He cannot rise above them. The want of the spirit that dares and dies is but the natural legacy of centuries of caste repression.

Whether in India or in America, a society, which deliberately depresses millions of its members, deprives itself of the scope of full development, both in the economic as well as the spiritual field.

XVIII

UNHAPPY AMERICA

Notwithstanding the fact that America possesses things, which, elsewhere in the world, nations stand in arms to conquer or to defend, notwithstanding her hoarded riches, fertile soil, technical arts, in fact, everything a nation could need, I gathered the impression from my contacts with the various grades of people that deep within them many Americans were unhappy. Something was wanting and for want of it the American people were profoundly troubled.

This unhappiness is not confined to the 10 million unemployed on relief who are "licked" as man. They are beyond doubt "licked" by the chaos of America, by the machine, by industrialization, by regimentation on one hand and by their futile frustrate psychology on the other. "It is horrible to say this but it is true—millions now unemployed are mainly or completely paralysed, impotent, 'washed up,' doomed, never again to be part of the vital constructive economic process of the country. They are caught in the depression. It is grinding them down, destroying whatever spirit they may still have possessed before they lost their last job, and—for complex reasons—they cannot rise above it, see beyond it, fight it."*

Yet America as a whole is the richest nation in the world. Whereas the problems of other nations are the problems of insufficiency, the problems of America are the problems of superfluity. In every field of activity

*Louis Adamic in "My America".

they have a surplus to get rid of. They seem to have too much land ; the land seems to be too fertile. They have taken elaborate steps to reduce the yield, as they do not know how to dispose of the surplus. They seem to have too many factories, and the machinery seems to be too efficient. They seem to have too much labour. Brains are raked to devise schemes for limiting the output and reducing the work done by the worker. They seem to have too much capital. But America is to-day not only the richest nation in the world ; it has the greatest inequality of wealth. Notwithstanding its democracy, it has the most centralised ownership and control in the history of the race.*

Notwithstanding the love of Americans for the dollar, they are not so materialistic at heart as they are made to appear. The root causes of America's unhappiness lie in the fact that it has not been possible for her to keep the social adjustments abreast of the changes brought about by the big machine and by scientific researches. Scientific progress has followed a quick ascending graph, which runs higher and higher and departs dangerously from the definite line known as public opinion.

Caught in the web of its own creation, the human body is unable to keep up with the terrific mental pace it has set during the last century.

Dr. Nash while discussing this question has asked, "can man survive in the modern civilized mad house that he has built." Dr. Nash has been connected with many colleges and affiliated with numerous educational associations. He holds several university degrees. He has written books and articles on physical education and other allied subjects; has travelled and lectured widely.

*Dr. John H. Gray, Head of the Department of Economics, Graduate School of the American University.

He has served as a member of the committee appointed by Presidents Hoover and Roosevelt for the study of leisure problems.

"As Dr. Mayo puts it," said Dr. Nash, "Man has moved ahead so fast as regards material civilization, that he is far behind in his power of adaptation. . . . . . So intricate is the web in which we are caught, so hopeless is our search for a way out, that many men give up the fight; they just go to pieces.

"Almost in one generation man has emerged from simplicity into complexity. For eons he was accustomed to a simple diet. Food usually was not abundant and man worked hard for what he got. As a result he seldom over-ate and he got plenty of exercise. . . . . ."

But man to-day finds himself in a different setting. He is surrounded by killers, according to Dr. Nash, and they are worry, fear, hate, jealousy, rush and confusion.

The result is that every second a hospital bed in the United States is occupied by an individual, mentally afflicted, insane, idiotic or feeble-minded. "Approximately the same number of people went into mental institutions last year as were graduated from colleges."

America, even in the opinion of the Washington Authorities, has become the criminals' promised land. Speaking to the members of the American Legion, William J. Wilkins declared "America, the world's most lawless nation, has an annual crime bill of $15,000,000,000 with approximately 4,700,000 criminals". Wilkins pointed out that 80 per cent of the crime was committed by youths under the age of 25. The official statistics* for one year were:—

People assassinated	12,000

*Page 131, Stars and Stripes by Maurice Dekobra translated by Metcalfe Wood, published 1938.

Victims of kidnappers	3,000
Women assaulted	100,000
Burglaries	40,000
Cases of arson	5,000

Everyday there are 800 burglaries in the country, the average loot being worth $59·19. The house ladies are advised by the police that, even when they leave home for a few hours, all doors and windows must be securely locked. "Do not leave a note saying when you are returning, nor tell a neighbour you are going out. Tell the police and not the neighbour how long you will be gone. If windows must be left open, fit them with clutches to prevent their being opened wider. Do not rely on screens. Put jewellery, silver or stock certificates in a safe deposit vault. Do not hide them in the house."

According to 1937 statistics (the only ones readily available at the time of writing), the criminal homicide rate in the United States for that year was 2,633. In the test cases investigated, the conclusion arrived at was that only 2·9 per cent of the total crimes had been perpetrated by gangsters or known criminals, while 50 per cent of them were the direct result of petty quarrels and disputes. This could be ascribed to easily provocable feelings, the volatile and quick temper of ordinary American citizens.

The situation has become so acute that the advanced criminologists are seeking for causes of crime in emotional or psychological reactions. Dr. Max. G. Schlapp, Professor of Neuropathology at the Post-Graduate Medical School Hospital of New York, looks upon the prevalence of crime as a symptom—along with increasing feeble-mindedness and insanity—of a basic disturbance in the nation's emotional stability.

"We are headed for a smash in this country," he says, "if we keep on the way we are going. There is

a curve in the emotional stability of every people, which is an index of their growth and power as a nation. On the upswing the nation expands and prospers and gains in power with the normal development of emotional life. Then comes a time when emotional instability sets in. When it reaches a certain point there is a collapse. This emotional instability causes crime, feeble-mindedness, insanity. Criminal conduct is a pathological matter, just as are these other disorders."

The same sort of problems are being created by changing conceptions in the dispensation of justice. In its last two terms, the Supreme Court of the United States affirmed 135 cases and reversed 175. There were 199 dissenting opinions.

"These figures indicate the extent to which the reconstructed court has undertaken to disavow and discard old doctrines and to declare new concepts," declared Frank J. Hogu, President of the American Association in opening the Association's 62nd annual convention.

"The plain result of all this is that no lawyer could safely advise his client what the law is ; no business man, no farmer, can know whether or not he is breaking the law, for if he follows established principles he is likely to be doing exactly that.

"What was a constitutional principle yesterday, may be a discarded doctrine to-morrow, and this, all this, is what has been so often proudly proclaimed to be a Government of laws and not of men."

Speed is literally killing America. Every half minute in 1938 somebody was injured in a motor vehicle accident in the United States, according to records of the National Safety Council. Some one was killed every 15 minutes. In Texas alone the automobile accidents for the year 1938 came to 1,600 persons

killed, 5,900 permanently injured, 60,000 temporarily disabled.*

During 3 days of the labour week, 373 accidental deaths were reported in the United States. More than 200 of these were attributed to automobile accidents.

Newspaper headlines feature scores of cases of shooting and stabbing of husbands by wives, of wives by husbands and of sweethearts by both husbands or wives or by other sweethearts.

In our modern environments, the relations between members of the two sexes have created problems of their own. Writing under the heading "America's Disgrace" Dr. Mary Halton wrote, "Of the two million babies born in the United States each year, not less than 5 per cent are illegitimate. Think of it! One hundred thousand children born out of wedlock in a country presumably enlightened, in a land teeming with welfare agencies, youth movements, schools and churches! More than 250 a day, each day of the year! More than 10 every hour! The actual numbers may be even greater. Thousands of them are smuggled into the world on falsified birth certificates, thanks to the kind conspiracy of the family doctor."

Easy divorce laws have resulted in one marriage in every 6 or 7 ending in a divorce suit. "The present method of trying uncontested divorce cases fills one with a sense of disgust", asserted Judge Smith, "under the unavoidable pressure of business, cases are tried at the rate of one every 5 or 10 minutes. . . . . . . This system is basically dishonest and filled with hypocrisy.

"This state of affairs must be changed," he maintained, "if we are to restore respect for marriage as an

*The Texas Weekly Saturday, July 1, 1939

institution, if we are to stop having the court tacitly connive at perjury and hypocrisy, if we are to place public interest above the whim of the individual." He suggested drastic changes in the law to compel divorce-bound couples to stop, look and listen and to give the courts more information on which to base their decisions.

While on the one hand there are alimony jails, the prison for husbands who do not pay alimony to their divorced wives, the oracle of women, Dorothy Dix has declared that separation is no cureall for a matrimonial mix up, that wives and husbands, who tire of each other and sever their nuptial bonds, rarely find in freedom the Utopia they anticipated. "Many a woman," she writes, "has sadly realized that when she got her divorce, she jumped from the frying pan into the fire.

"Nor do men find a glory ticket any more than women do. They are socked for alimony, which is always the hardest of all money to pay. Their homes are broken up. Their children are taken away from them and they have the bitter knowledge in their minds always that the youngsters will grow up, hating and despising them and that they will be deprived of the greatest joy, that can ever come to a father—that of having sons and daughters who love him and of whom he is proud." That divorce is a blight on the lives of the children, who are swapped back and forth between new sets of parents in which they grow cynical even in their babyhood, is a fact that no man and woman can deny. The thought of the wrong they are doing the hopeless little creatures they have brought into the world, must make every husband and wife who gets a divorce, except for the gravest cause, feel like a traitor, who has let down his or her own folk and blood. It is constantly emphasized by leaders of thought among women that divorce is pitiable—rather the failure of any

marriage is a pity. It is admitted on all hands that children of happy, congenial, wholly united parents are, other things being equal—the more fortunate.

More and more Americans are coming to realize "that before marriage the ideal state is chastity. Chastity requires early moral training. It is the highest expression of self-discipline. Voluntary restraint from the sex act during youth more than any other moral and physical effort enhances the quality of life."* Discussing the same subject in more detail Alexis Carrell emphasized that "marriage should provide a proper environment for the offspring. The slow development of children, the necessity of their organic and spiritual formation, require permanancy in human mating, in other terms, monogamy and indissolubility of marriage."

While many American women refuse to have babies because pregnancy would spoil their figures, they are reminded that the old age of those without children resembles a barren desert. In addition it is emphasized that "insufficient fecundity is also dangerous. For the only child is deprived of the companionship, formative influence and help that his potential brothers and sisters would have given him. . . . . . It is probable that three children are the indispensable minimum for the harmony of the family and the survival of the race."

On one hand there is a tendency among young men not to be tied to an ever-loving wife, but to have only girl friends, to whom he can give the air without having to pay alimony, when he loses his taste for them. On the other hand, their advisers suggest "that if a man wants to amount to something in the world and his idea of happiness consists in doing well the work that comes to his hand and being helpful to his

---

*Married Love by Alexis Carrel, Nobel Prize Winner.

fellow creatures, then he is better off married than single. . . . . Statistics show that married men live longer than bachelors, because they have a regular life and because of the ways in which their wives take care of them—not letting them get their foot wet and making them go to see the doctor about ailments which the men themselves would neglect."

Continuing the same subject, Dorothy Dix declares, "the married man has the best chance for happiness. For there are no good times like those that one has in one's own home, surrounded by those he loves and who love him. The man who has that drinks the wine of happiness that leaves no headache."

There is a growing feeling that modern society has committed a serious mistake by entirely substituting the school for the family training. "Mothers", bewails Alexis Carrel*, attend to their careers, their social ambitions, their sexual pleasures, their literary and artistic fancies, or simply play bridge, go to the cinema and waste their time in busy idleness."

He repeatedly insists that "marriage must cease to be only a temporary union. The laws relating to education, the marriage and divorce must above all take into account the interests of children. Women should receive a higher education not in order to become doctors, lawyers or professors but to rear their offspring to be valuable human beings."

Dr. Charles Sheard, Director of Bio-physical Research at the Mayo Foundation, America has declared that the very difference in the nervous system of the two sexes would seem to indicate that man is built to be the bread-winner and the woman to take care of the home.

---

*Man the Unknown, page 270.

These contradictory tendencies are obvious in all walks of life. Amidst the hustle and bustle of American life, there is a great deal of wistfulness, of the divine desire to lie on a plot of grass to spend an idle afternoon. The author of "Wake Up And Live" points out that there are many in America who indulge in time-killing pursuits in which they take only the most minor and unconstructive parts; pathological bookworms, the needless cross-word puzzlers, chain smokers and the heavy drinkers. Then there are the active type, for example, the relentless movie and theatre-goers, the night dancers, all those who count the day lost, which has not a tea or dinner or cocktail party in it. She mentions of another group of cajoling winsome adults, who insist on being exalted by their contemporaries, as just great, big, delightful children. . . . irresponsible, perhaps not very thoughtful but so exceedingly lovable, even to strangers.

Whatever the ostensible purpose may be, it is plain that one motive at work in such cases is "the intention, often unconscious, to fill life so full of secondary activities or substitute activities, that there will be no time, in which to perform the best work of which one is capable."

The necessity of detachment from the surroundings and of relaxation has already been felt in over-busy America. "I do not make a plea for laziness, for drifting," said Dr. Nash, "but for relaxation, alternating with dynamic action. It is not a plea for doing less, but for doing more and for doing it easier. It is a plea for harmonious conflict,—a plea for the nation to catch its rhythm, for the individuals on the one hand to take control of their environment and give it direction, and on the other hand to relax amid confusion. "Unless we can restore this rhythm, it does not hold a very optimistic picture for the future of man."

"In the economic sphere, this obvious conflict between the big machine and scientific research on the one hand and demoralisation and unemployment on the other, is perhaps the biggest factor in America's unhappiness.

"After all, the purpose of civilization is not the progress of science and machines but the progress of man. No advantage is to be gained by increasing the number of mechanical inventions.

"What is the good," asks the enlightened American author, "of increasing the comfort, the luxury, the beauty, the size and the complications of our civilization, if our weakness prevents us from guiding it to our best advantage! It is really not worth while to go on elaborating the way of living that is bringing about the demoralization and disappearance of the noblest elements of great races. It would be far better to pay more attention to ourselves than to construct faster steamers, more comfortable automobiles, cheaper radios or telescopes for examining the structure of nebulæ. What real progress will be accomplished when aircraft take us to Europe or to China in a few hours! Is it necessary to increase production unceasingly, so that man may consume larger and larger quantities of useless things! There is not the shadow of a doubt that mechanical, physical and chemical sciences are incapable of giving us intelligence, moral discipline, health, nervous equilibrium, security and peace."

"In the poor as well as in the rich, leisure engenders degeneration. Cinemas, concerts, radios, automobiles and athletics are no substitutes for intelligent work. We are far from having solved this momentous problem of idleness created by prosperity, modern machinery or unemployment. By imposing leisure upon man,

scientific civilization has brought him great misfortune."*

On the other side, there are sound economists who prescribe that "the new American business frontier is in more food, more shelter, more clothes, more light, more health, more education, more play for that large segment of our population which does not to-day have a sufficiency of these things."†

Bruce Barton, an advertising magnate and Republican Congressman continues in the same strain: "Nothing is finished in America. We do a lot of advertising of tooth-paste but only 25 per cent of the people brush their teeth. One home in four has no bath tub. The consumption of hats by men is half a hat per year. What couldn't the tonsil industry be if every tonsil that ought to come out were taken out! Millions of our homes are not wired. Of those that are, only half have electric refrigerators. Air-conditioning hasn't really started. We still have more illiterates than we have college graduates. Nothing is finished."

They think that the only remedy is to raise the standard of living. To do this the productivity per man has to be increased. The machines have to be 25 per cent more efficient than they are at present. The one goal they have in view is to lift up the whole population, layer after layer, into being better consumers of better goods.

Torn between these conflicting ideologies, the American people are profoundly troubled. They have no vision of their future. They are oppressed by fear. They are living anxiously from day to day. Far from being inspired by America's riches and prosperity, they

*Alexis Carrel in "Man the Unknown."

†Dr. Isador, Lubin of the Bureau of Labour Statistics in Reader's Digest, September, 1939.

recoil from those very constituents of greatness, which their predecessors struggled hard to obtain.

America is terrified by the big machine of its own creation. She loathes its net results. She looks towards the light. It may be that her present growing pains may hasten her to maturity with unexpected speed.

America is fully alive to the causes of her unhappiness. She has produced remarkable critics of her social system. These critics do not do their job with kid gloves. When H. C. Menken or Vanwyck Brooks picks up the ruler, their fellow citizens look out for their knuckles. When Sinclar Lewis or Dreiser whips his fellow countrymen, the scars remain. When the humorous Briggs draws a caricature, he etches it in with acidulated ink.

What is required, perhaps, is not a "back to the jungle" course, but a co-ordination of all the various sciences, a co-ordination between economics and ethical conceptions. Specialists in various branches, such as biology, chemistry, political economy have done tremendous good for the advancement of American researches and prosperity. The need of the hour seems to be some synthetic minds capable of embracing all sciences. Specialists will be used by him in the same way as the professor of medicine of a great university utilizes the services of a pathologist, a bacteriologist, a chemist and a physicist in the laboratories of his clinic. The work of these individuals would be really uphill.

"Indeed the few gifted individuals who dedicate themselves to this work will have to renounce the common modes of existence. They will not be able to play golf and bridge, to go to cinemas, to listen to the radios, to make speeches at banquets, to serve on committees, to attend meetings of scientific societies, etc.

They must live like the monks of the great contemplative orders and not like university professors."*

Men and women exist to-day in America capable of such supreme renunciation. They would undoubtedly solve the many involved problems of America's unhappiness in due course.

---

*Alexis Carrel in "Man the Unknown".

XIX

AMERICA AND INDIA

From my early school days I carried an impression that the tropical climate of India produced an enervating effect on the physique of the people and was chiefly responsible for their backwardness. Even a short visit to the Southern States of America convinced me that, though extreme heat is a disadvantage, it cannot be held responsible for all the ills of India. The American daily press amply corroborated this conviction. Here is an extract from the Weather Bulletin :

"Chicago, July 10 (A. P.)

The mercury climbed to 112°F. on Sunday at Yuma and Phœnix, Arizona. Maxima in Texas included 107° at San Autonis, 103° at Brownsville and 105° at Austin.

Indicative of the heat waves range, temperature readings were 102° at Salt Lake City, 105° at Boise, Idaho, and 90° at Medicine Hat. Alberta."

When we passed through Arizona, temperature ran as high as 115°. Yet the residents of Arizona are not tired of praising their state. The following extract from an article by E. E. Cook, in Phœnix Gazette of July 19, 1939, is typical :

"Arizona is the enchanted land of fruits and flowers ; the land where perennial verdure clads the sun-kissed soil in a garb of sweet forgetfulness ; the land where the very atmosphere breathes a health and happiness that laughs at the doctor's rules, inspires humanity to flirt with Father Time and to outwit the undertaker; the land where vainglorious men at 80 or

90 begin to plan for their vacation when they celebrate their hundredth anniversaries.

"Arizona is the land where the majestic mountains, standing in their scenic splendor, defy the human vocabulary and speak a language all their own—a language more alluring than the Oracles of Delphi of ancient Grecian glory; the land where the mountain valleys suggest the making of a modern paradise, a veritable Garden of Eden for the contented mind; the land where true western hospitality is enthroned in every soul and assures the visiting stranger that he is a peer to the best. It is the land where the sweet-scented orange blossoms and the welcome voice of the whispering palms weave a song of joy into the human heart, make life a real charm and grace the abode of mankind as a haven of the blessed.

"Arizona is the land where the mineral riches of the mighty mountains vie with the copious harvests of the valleys in enriching those who toil, and help to swell the tide of commerce of a prosperous world; the land where the horn of plenty pours out its abundance at both ends and indicts the fiends of depression; the land where the rewards of the artisan and the ambitious genius combine with nature's gifts to spread the spirit of joy and contentment around the fireside of the cottage and the palace.

"Arizona is America's marvellous wonderland of amusements and scenic glory, where the wonders of nature are shown in the superlative, where the scientist finds no end of laboratories teeming with mysteries, and where the students of nature's laws are never able to graduate; there the handiwork of an ancient civilization as old as that of Egypt, made a people to thrive and prosper ages before Columbus started for America, or before he dreamt of a new world.

"Arizona is the land where nature's masterpieces and scenic splendors enrapture the mind of the believer, and lead the sceptic from the realms of doubt to the belief that the 'Hand that made us is Divine'.

"This is Arizona, the rededicated Garden of Eden, the coming paradise of human dreams."

If India were substituted in place of Arizona in the above article, the tribute would be equally deserved.

There is so much common in the physical and economic conditions of the U. S. A. and India that one might almost be called a replica of the other in the two hemispheres. Both the U. S. A. and India have more than their share of the good things of the creation of God. Both, owing to their geological formation and varied climate are equipped with almost every natural resource that is required to make the country self-sufficient. Either of them could continue to live and prosper, if it were to be cut off from the rest of the world. A recent writer, in the East Indian Review, analysing the conditions of all the countries, declared that only three countries in the world possess the necessary natural potential resources to make them entirely self-sufficient, viz., U.S.A., Soviet Russia, and India.

Even the early histories of the two countries bear a good deal of resemblance. Europeanization of America can very well be compared with the early Aryanization of India some thousands of years ago. In fact, the early history of India seems to be repeating itself in the United States of America. The early European settlers in America appear to have dealt with the original inhabitants of that country in the same way as the early Aryan settlers did with the original tribes of India. Both sang the praises of the country of their adoption. The following extract from an American

Professor (Russell Smith) bears a close resemblance to some of the writings of the early Aryans :—

"The maize belt is the gift of the Gods, the Rain God, the Sun God, the Ice God and the God of Geology. In the middle of the North American continent, the Gods of Geology made a wide expanse of land where the rock layers are nearly horizontal. The Ice God levelled the surface with their clay making it ready for the plough and also making it rich. The Rain God gives summer showers. The Sun God gives summer heat. All this is nature's conspiracy to make land grow maize. Having maize, man feeds it to cattle and hogs and thereby becomes a producer of meat. The maize belt, a quarter of a million miles in extent, is one of the finest blocks of farm land in the world."

The United States is twice the size of the Indian Empire in area, while its population is only about one third that of India. Geographically, nature has marked out India as a better political unit than the United States. The dividing line between Canada and the United States of America is an imaginary line, the line of the latitude of 49° North, for a great distance. In the case of India, Tibet and the Northern countries are divided by the high mountain of Himalayas. Never was a wall of separation raised by nature more towering and more impossible. There is scarcely an opening along the immense extent of this range. This range, the most compact and the highest in the world, hardly yields a passage to either the rude wind or the ruder people of the north.

For a considerable length it is bounded by the sea. India has a coast line of about 4,500 miles in length. Like America, India has a large number of rivers, some of them very wide and long with very much the same characteristics of flow. Like America, India possesses

a large variety of climates, from the hottest tropical to moderately warm and even cold. India stretches from equatorial latitude of 8° North to latitude 36° or 37° North, while the United States lie mostly between the tropic of Cancer and latitude of 49° North. Latitude, however, ensures uniformity of climate, only if the land be flat and uniformly conditioned. A mountainous country can enclose many climes within a small compass, for the average temperature is lowered by 1° to an ascent of 350 to 500 ft. Thus a very high range is divided into many narrow belts or zones, which answer as to climate and productiveness to other countries on entirely different latitude.

India possesses the highest mountain in the world. Many a lover of mountain scenery has sacrificed his life in an attempt to get to the top of its highest peak. The Mount Everest is a little more than 29,000 ft. above the mean sea level, the highest peak in the whole of North America being only 18,000 ft. above the mean sea level.

In rainfall there is the same range of variation. In India the area lying north of Assam claims the honour of having the largest rainfall in the whole world, i.e., 481 inches on the average. In the year 1861, the rainfall actually recorded was 805 inches, out of which 366 inches was recorded in the single month of July. Against this there are the dry provinces of Sind and the Western Punjab, where the annual rainfall is even less than 5 inches. In the United States, in the eastern parts the annual rainfall ranges between 40 and 60 inches, while there are dry tracts in the west, where there is practically no rain.

There is the same richness in flora and fauna in the two countries. The richness of India's vegetation



Our car passing through the trunk of a red wood tree in California.

can be seen from the fact that there are 1,700 species of flowering plants.

Among foods it grows rice, wheat, barley, millet, pulses, maize, gram, sugarcane, potatoes, pine-apple, etc. Amongst the fibres may be mentioned cotton, silk, jute, hemp and flax. The oil seeds include groundnuts, cocoanuts, linseed, rape and mustard. Drugs such as tea, coffee, opium, tobacco and cinchona are typically Indian. In addition, indigo, India rubber, gutta, etc., are also produced in abundance. In fact, one may say in brief that there exists every kind of distinctly tropical indigenous plant. There is scarcely a variety of fruit tree, timber tree, food plant or ornamental plant that America or the temperate regions of Asia can boast of, which is not grown in India.

If there are the red wood trees in California—some three to four thousand years old—"trees bigger than a city-block long, trees each large enough to build 40 or 50 houses, trees large enough for roadways to pass," there are in India the lordly oak in the Vindhya Belt and deodar on the edge of the western Himalayas, admiringly named as Dev Daru "The tree of the Gods" (angelicised into Deodar). The deodar may have a trunk from 20 to 25 ft. in circumference in regions above 6,000 ft. above the sea level. In age and volume the banyan tree may compare to the red wood trees of California. Writing about this tree Lassen described it as the most astounding piece of vegetation on the face of our earth. "From one single root it produces a very green temple of many halls with cool shady bowers impervious to the light and seems created expressly and exclusively for the purpose of supplying shelterless primeval humanity with ready made dwellings. The central trunk of one banyan tree near Madras is known to have been 28 ft. in diameter and to have been surrounded by a small

circle, 27 secondary trunks each about 11 ft. in diameter and from 30 to 50 ft. in height and after that by almost innumerable others of decreasing thickness. The largest known banyan tree had over 1,300 large trunks and 3,000 smaller ones. Armies of six or seven thousand men have frequently been encamped in its bowers. What may be its age nobody can tell."

Cotton, sugarcane and tea are natives of India from times immemorial. Herodotus thus described the cotton plant in his chapter on India:

"There are trees which grow wild, fruit whereof is a wool, exceeding in beauty and goodness that of sheep. The natives make their clothes of tree wool."

The United States produces nearly two thirds of the world supply of cotton.

Sugarcane is so much a native of India that its produce is called by its Sanskrit name Sharkara later Sakhara but slightly corrupted in European languages, Latin, Saccharum, Slavic Sakher, German Zucker, Italy Zuchers, Spanish Azucar, French Sucre, English Sugar, not to mention Arabic Sukkar and Persian Shakar. Even the word candy, originally crystalized transparent sugar, is only a corruption of the Sanskrit "Khand", a name designating the same article. There is no time in the known history of India, when the art of manufacturing molasses and sugarcane by boiling down and clarifying sap was unknown in this country.

That tea should be a native of India and not of China will probably be a surprise to the American reader. It grows wild in Assam, where it sometimes reaches the size of a large tree. It was introduced from Assam into China.

In the matter of produce from the soil, India is really better off than the United States as there are

certain products which cannot be grown in the climate of the United States. In this category come tea, coffee, cocoa, rubber, all tropical plants and silk.

India has the same variety in the animal creation, both wild and domestic. Blandford in his "Fauna of British India" mentions 12,229 genera and 4,100 species of vertebrates. If the bear is the national beast of America, the tiger may be considered as most distinctively the national beast of India, as there is no doubt whatever that India is his original home, whence he migrated into other parts of Asia both East and West. Like America, India is rich in fisheries, though their vast potentialities have not yet been realized.

In mineral resources as well, which have come to be regarded as the most important factor in a country's wealth, the Holland Commission (1918) stated that the mineral deposits of the country are sufficient to maintain most of the key industries. According to Ball:

"Were India disassociated from the rest of the world or were her mineral produce protected from competition, there could not be the least doubt that she would have been able to meet within her own resources the supply for nealy all the requirements in so far as the mineral wealth is concerned of a highly civilized India."*

Economically the most valuable product of India is coal. The coal though unequally distributed and not of high quality is sufficient in quantity for her present requirements. The total output of coal increased from 12,700,000 tons in 1911 to 22,000,000 tons in 1934-35.

Iron ores of rich quality are widely distributed over the country. India's resources of high grade iron are more than sufficient to meet her own requirements.

*Economic Geology of India (1881).

The outturn of pig iron and steel in 1932 and 1934 was 1,000,000 and 1,050,000 tons, respectively. The iron and steel works at Jamshedpur are the largest in the British Empire.

Copper ores are found in Bengal, Orissa, Central Provinces, Rajputana and in some districts of Southern India. Manganese is extracted in large quantities in the Central Provinces, Bombay, Mysore and Madras. India is second in the production of manganese in the whole world. Amongst the mineral resources not yet successfully utilized may be mentioned chromite, tin and antimony. India stands first in the production of mica in the world and turns out more than half the total annual supply. Amber, graphite, petroleum, platinum, gold and salt may be mentioned among the other mineral deposits in India. Petroleum is found in Assam and the Punjab and gold in Mysore. India is rich in building-stones of excellent quality. She is also rich in mineral springs of all kinds, most of which are as yet unexploited.

Endowed with a soil exceedingly fertile and extensive in area and with mineral resources of varied character and rich in quality, it is not difficult to understand that India once rose to her pinnacle of glory. With the high quality of the native made iron, the early known processes for the manufacture of high class steel and of artistic products in copper and brass gave India, at one time, a prominent position in the metallurgical world. As a chief source of nitre, she held a position of peculiar political importance, until, less than 640 years ago, the chemical manufacturer of Europe found among his by-products cheaper and more effective compounds for the manufacture of explosives.*

*The Mineral Resources of India Report by T. H. Holland, 1908.

Like the United States of America, India possesses ample potentialities for the development of hydro-electric energy.

In short, nature bestowed on India and the United States the same blessings. In some respects India was perhaps more favoured.

What then is the reason that while the United States of America is the richest country in the world, India is the poorest? Why is it that income per head in the United States of America is about 25 times that in India?

In the light of India's past history, there could be little justification in the assumption of racial superiority by the European or the American over the Indian either in intellect or in character. The Aryans who settled in India were a branch of the same people who took over and developed the ancient Mediterranean civilization. Only in India, the Aryans have become browner in complexion and darker of hair due to climate. Sir Feroz Khan Noon declared in one of his lectures in Canada : "If there is any country in the world, where the purest Aryans exist, I claim, it is India ! And the preservation of this purity may be ascribed to the caste system. To this day there is a custom among the Rajputs that they shall not marry anybody but a Rajput. They have followed this custom even when they adopted other religions, e.g., Mohammadanism."

The poor physique, the low vitality, the economic insufficiency of the people of India, as seen at present, are very largely the product of their environment and circumstances.

Whatever circumstances may have been responsible for it, both internal as well as external, the reply to the above question can be summed up in one sentence, i.e., India has not kept pace with modern science. Because

of this. she went to the lowest ebb at the end of the 19th century. With the coming of the industrial revolution in Europe and the flooding of the Indian markets with the cheaper European products there was a period, during which the old arts and the cottage industries decayed. The production of alum, alkalies, blue vitriol and copperas and the export of borax from Kashmir and Tibet practically came to an end. The production of copper, lead wire and steel and other valuable minerals and metals was either completely stopped or drastically curtailed. The old fashioned indigenous industries could hardly compete with the modern large scale production. Thus, while in America, man made Niagara drive mills, illuminate cities hundreds of miles from the falls, and generate power for the production of goods; in India, he was content only to import and use such goods.

The wealth of a people is neither a gift of the heaven, nor a gift of nature. The people have to create wealth by organized labour. The more the output of work by a country, the richer it is. The total work output of the average Indian is even less than one twentieth of that of the average American. When all the work used to be done by human or animal power, India held her own. But at the present time most of the work is done by steam engines, oil engines or electricity.

The total output of energy per head per year in a modern civilized state is about 1,700 units. In India the electrical energy per head is only seven: steam and oil power will not amount to more than ten. A labourer working for eight hours daily produces only six tenths of a unit and in a year of 300 working days, he does not produce more than 180 units. But only one third of men and women are active. Hence the

average output per year per head is only 60 units. Taking the work done by animal power to be ten, the total output of work per head per year comes to 90 units* only. This is nearly one twentieth of the work output per American and about one sixth of that of a Japanese.

The additional output which an American gets is from the exploitation of the power resources of his country. Such resources exist in India. Besides coal, oil and other fuel India possesses large resources of water power. It is likely that on detailed surveys greater potentialities will be found. Even such resources as are known to exist have not been developed and profitably utilized. This is the root cause of poverty in India.

Not only have the power resources not been developed but whatever little power is available is extremely dear. The price of power in India is about four times that in Japan and about six to ten times that in America. This is one of the main causes of India's backwardness in industrialization.

It is this neglect of the natural resources of India by her people, which is mainly responsible for their poverty and not the over population as is so often asserted. India possesses potential resources to support her present population. In fact, it can support a larger population than exists at present with an improvement in the standard of comforts ; but " the true friend of India will be one, who will not desire to see the population increased till the production of wealth is increased substantially, in the immediate future, with a view to securing a rise in the condition of life of the people."†

---

*Prof. M. N. Saha in his Presidential Address to the National Institute of Sciences of India (1938).

†Wadia and Joshi in " Wealth of India ".

Even now if India takes a leaf from the history of America, the time may soon come when India would be able to pay back her debt. If India needs America, America too needs India.

If my impressions are correct, the history of India's glorious past is repeating itself in the United States. After reaching the saturation point of material progress in all directions, in science, in art, in medicine, in industry, the Indian philosophers came to the conclusion that the purpose of civilization was not the progress of science and art, but the progress of man; the cry changed to 'Know thyself'. There are clear signs in America that advanced thinkers are now asking the same question that in spite of all scientific advance, man still remains "Unknown". The wisdom of ancient sages that India has still preserved may fill up the gaps; but the voice of India in economic bondage can command but scant attention.

XX

IMPORTANCE OF WATER POWER

Mankind has improved its lot in direct ratio to its ability to create, harness and utilize power. Those nations which have the greatest developed power rule the world.

From the dawn of human life on this planet, man's intelligence has turned to the development of substitutes for man power. In the earliest years he harnessed the animal most easily tamed, a form of power still used as aids to transportation and to agriculture, and in some countries for the turning of wheels in industry.

Later in man's progress through the centuries, windmills and simple water wheels were used to obtain power from the air and water. In the eighteenth and nineteenth centuries energy was secured largely by the combustion of coal or other fuels. It is only comparatively recently that energy is produced on a large scale from falling water. The commencement of the long distance transmission of electricity at the beginning of the present century has resulted in the extensive development of hydro-electric power for distribution over wide areas.

Despite the efforts of the best brains, it has not been yet possible to obtain power directly from the greatest source of energy in the planetary system, the Sun. Until this is possible, the most important sources of energy remain coal, petroleum and water power.

Energy now enters so largely into the scheme of modern commerce and industry that it is considered the basic tool of the manufacturer. Low cost energy is the key to industrial supremacy.

"Power has become the most efficient tool of the

machine age, enormously lessening manual labour and quickening and rendering more efficient almost every productive activity. Its future expansion holds rich possibilities for material well-being and for consequent leisure and cultural advancement."*

Water power has become of such importance in power production that those associated with power development in any country are keenly interested in methods in vogue in other parts of the world. To facilitate a study of the world power conditions three plenary World Power Conferences have already been held to consider the technical, economic and statistical aspects of power development. The latest of these Conferences held at Washington in September, 1936, was composed of representatives of more than 50 major States. Following these Conferences, sectional meetings were held to consider special problems relating to the production and supply of energy. Tentative arrangements have already been made for the holding of the Fourth World Power Conference at Tokyo, Japan, in 1942, if the international situation permits.

Statistics for water power are published in the same way as for other basic commodities such as pig iron, coal and liquid fuels. In this case they show the kilowatt-hours of electric energy produced and take note of undeveloped water power, as being a source of raw material, just as important as uncut forest or untapped coal oilfields. In fact, water power has popularly come to be known as "White Coal".

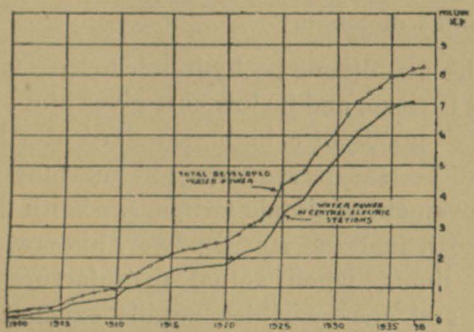
In the United States the development of water power has been quite rapid. The first hydro-electric plant was set up in 1882. There are now 2,869 electric water power plants counting only those of 100 horse-power and above. The production of electricity by water

*Third Water Power Conference held in Washington, September, 1936.

power in the United States has almost tripled in the last 20 years. In 1938 water power was responsible for about 40 per cent of the country's total electric plant output, almost 45 billion kilowatt-hours or nearly 60 billion horse-power. If produced by fuel plant, it would have required 31,600,000 tons of coal.

In Canada the development of water power has been phenomenal. It has increased from 173,000 horse-power in 1900 to more than 8,100,000 in 1939. In less than 10 years the capital invested has grown 1,000 times. The bulk of the invested capital has come from the Canadians themselves. The total investment in 1939 came to $1,650,000,000 in development, transmission and distribution. Practically every large industrial centre throughout the Dominion is now served by hydro-electric plant.

PROGRESS OF WATER POWER DEVELOPMENT IN CANADA
DECEMBER 31, 1900 to 1938



National income to the Dominion from hydro-electric energy resources is about $147,500,000. More than 98 per cent of the electricity generated by central electric stations in Canada is derived from water power. Water power supplies 80 per cent of the energy operating all secondary industries in Canada.

A comparison of the water power development in the Dominion with corresponding development of fuel

power, under similar conditions, indicates that each installed hydraulic horse power, if operated continuously throughout the year, would effect a saving of about 4·64 tons of coal. On this basis the present installed capacity is capable of effecting a saving of thirty-eight million tons of coal. In 1938 the actual saving of coal effected by water power was estimated to be some 16,500,000 tons.

Electric power has many advantages for industrial manufacture. Electricity assures a uniform speed in machine operations, thus allowing an exact manipulation resulting in the attainment of a high quality product. In the case of steam power, the mill and the power plant must be close to each other ; with electricity, the mill and the power plant can be located in the most favourable situations, the power being transmitted by wires and cables. Further, the mills can be erected at points most suitable for transportation facilities and near supplies of labour.

To the manufacturer, hydro-electricity is attractive because it is clean, and its low cost gives him opportunity to produce goods of a high standard at a low price. It can also be transferred from one machine to another by the movement of simple switches. With the employment of coal, fuel and steam power, his power must be ready at times, when actual manufacture is not in progress, and energy which entails expense is wasted before the actual process of manufacture is commenced, and after it is ended. Hydro-electric power can be switched on or off when desired without any wastage, and there is generally available a reserve of power in the form of stored water or larger normal flow. It is, therefore, possible for him to interest himself in mass production, which will afford constant employment to his employees and a constant efficiency in their workmanship.

Hydro-electric power is a tremendous economic weapon, and the more it is employed, the greater will become the benefits to the country. As a cheap power, it attracts industries whose outputs are limited by the local costs of manufacture.

It is significant that 82 per cent of the developed water power plants are situated in Ontario and Quebec, where also are situated about 82 per cent of the manufacturing industries of Canada.

Large amounts of power are essential for every branch of the mining industry. In coal-mining as much as 10 per cent of the product may be used to develop the power necessary in the recovery of the coal. The value of low-priced water power is very great and apparent in this branch of mining. In many cases, on account of their geographical situation, metal mines would find the cost of railway carriage on fuel to be prohibitive. Hydro-electric power costs the minimum for transfer from its source of origin to the point where it is consumed. Not only does its low cost permit operations in the mines, but low grade material can be recovered on a profitable basis, not obtainable by the use of other power.

On account of easy transmission to long distances, the farm wife, resident in some isolated district in Canada, is enabled to enjoy the domestic comforts of the city. Niagara electricity illuminates her house and the farm buildings; electric oven allows her to cook food, yet to keep the kitchen cool on the warmest day; electric fans maintain a constant movement of fresh air through the rooms ; electricity churns the cream into butter, or drives the washing machine and mangle ; the electric iron enables her to hasten with the laundry ; and the electric telephone brings her neighbours and the distant trader to the room in which she stands. Music,

lectures and news are hurled through the air by electricity to be translated for her benefit by the radio loudspeaker. Electricity smashes down isolation for her.

There is a rising demand for electric power, and over-production of this commodity will not be attained for many years to come. From every angle of economic outlook, water power occupies an important position in the future development of any country. Cheap power is the life-breath of industry. It is this element which will attract prosperity and wealth.

Coal as a source of power is still in great demand. The modern coal-burning plants have attained great efficiency in competition with cheap water power. Only one pound of coal is now necessary to produce one unit of electricity from a thermal plant, while 30 years ago the figure was about 9 times as great. A great economic disadvantage of using coal, however, is that the coal consumed entails a partial depletion of the source.

Water power, on the other hand, is peculiar in that it is not exhausted by use. On the contrary, it may be said that its wastage lies in its non-use. No matter to what use it may be put by industries, the supply is constantly renewed by the ever-recurring cycle of evaporation, condensation, precipitation and run-off.

Water seldom goes on strike and the first amount of capital expended upon the equipment necessary to the harnessing and employment of that power is practically the sole expense, the maintenance cost being relatively low.

It has been contended that where high tension transmission from a hydro-electric plant would be required over a considerable distance, it has become cheaper to secure power from coal at a strategically situated steam plant. This may be the case with the

United States of America, where coal is found in 26 out of 48 States and there is no location more than 600 miles from an active coal-producing area. In India, good quality coal is found only in the Eastern parts, the Damodar basin and the basins of some of the Orissa rivers. Some inferior kinds of coal are found in the Punjab, the Central Provinces and Hyderabad State. Other parts of India have to depend either on coal transported from these parts, involving heavy expenditure on carriage or on their water-power resources.

Water power is of particular importance to India from another point of view. The late Col. Battye wrote in 1923 that according to geologists, the coalfields in India would be exhausted in 80 years. This notwithstanding the fact that India is industrially still very backward. As compared to this, the United States has half the world's supply of coal, of which less than one per cent only has been used to date. On the other hand, India's water-power resources, according to Meare's preliminary surveys, are capable of a development equal to 12,680,000 kilowatts, of which not more than half a million kilowatts have so far been developed. It is quite probable that on detailed surveys the actual resources may be found to be much greater.

The Punjab is deficient in coal, but very rich in water-power resources. According to a survey made by R. N. Aylward in 1922—24, we have within the Punjab and adjacent States nearly 1¾ million kilowatts, most of which is capable of sound economic development. This is equivalent to an outturn of over 12 million tons of coal per annum, which is more than half the output of all the coalfields in India. Also it is based only on minimum discharges. It does not take into account the subsidiary power that can be generated in summer months, when greater discharge is available. Nor does it take into account the power that can be generated

from the large number of falls existing on the Punjab canals, nor from the artificial dams for which suitable sites exist on the Punjab rivers. Up to 1925, only 8,200 kilowatts (amounting to less than half per cent of the available power) were developed. On the Mandi Scheme the total installed power so far is only 48,000 K.W.A., while the total power sold comes to about 14,000 K.W.A. only.

Does a market exist in the Punjab for the use of large amounts of power ? If Canada be taken as a guide, markets would grow, provided sufficiently cheap power can be made available. Pulp and paper manufacturers in Canada use 1,800,000 horse-power generated by water. Due to cheap water power, Canada supplies 40 per cent of the world's production of newsprint. In the north of the Punjab, in the Himalayas, large forests exist. If cheap power and transport be available, lumbering paper and pulp may become important industries of the Punjab. It is on account of cheap water power that more than 62 per cent of Canada's population have electric service in their homes. It is due to its low cost that electricity is widely used for domestic cooking and water-heating and for a wide variety of household appliances. Cheap water-power electricity is penetrating extensively into many rural areas bringing to Canadian farm-dwellers the conveniences and comforts enjoyed by the urban population.

Hydro-electricity can be given at low rates only if the capital outlay in the construction of dams, weirs, and pipe lines is kept low. The capital cost of some of the hydro-electric plants in India are :*

	Cost in rupees per kilowatt installed.
Tata Power Co. Ltd. ..	550
Andhara Valley Power Supply Co. ..	708

*A. N. Tandan in Science and Culture (1938).

		Cost in rupees per kilowatt installed.
Tata Hydro-electric Power Supply Co	..	566
The Cauvery Scheme	..	550
U. P. Hydro-electric Grid	..	1,200
Mandi Hydro-electric Works	..	1,500

Notwithstanding the comparatively high initial cost of the Mandi Hydro-electric Scheme, it is proving a boon to the Punjab industrialist. He has now to spend money only on purchasing a motor to get power delivered at his door.

Perhaps the best policy for the Punjab to reduce the initial cost on hydro-electric works will be to follow the example of the United States of America, where the cost of expensive dams is shared by several agencies benefited. It is this policy, which has enabled the United States to construct 38 power dams of a height of 200 ft. or more, ranging up to the Boulder Dam 727 ft. high. The Boulder Dam has been constructed to fulfil four major purposes. The lower 300 to 360 feet of the reservoir depth is allotted as a silt pocket, the next 155 to 215 feet for active storage or regulation and the upper 75 feet for flood control. The generation of electrical energy is almost a byproduct. But this byproduct by its sheer magnitude is expected to pay the entire cost of the dam in 40 or 50 years, even though firm power available throughout the year is contracted at about one pie per kilowatt and secondary power at about one third of a pie per unit.

The Tennessee Valley dams when completed will have an ultimate installed capacity of 1,788,000 horse-power. The total cost of these multiple purpose dams will be slightly less than half a billion dollar, of which one half only is to be charged to power.

Grand Coulee Dam now under construction is primarily meant for irrigation of dry lands. But

advantage is being taken to produce electricity almost as a byproduct. But it will be of such a magnitude that when fully equipped the power plant at Grand Coulee will be by far the largest in existence in the world. It will consist of two separate but similar power-houses, one on each side of the river, each to contain nine generators of 105,000 kilowatts capacity. The total ultimate installed generator capacity including three 10,000 kilowatt station service units, will be 1,920,000 kilowatts. The heads under which the turbines will operate will vary between 275 and 355 feet.

The projected Bhakra Dam in the Punjab will be capable of generating about 150,000 kilowatts of firm power and about 500,000 kilowatts of secondary power.

XXI

MAN *VERSUS* MACHINE

Although the world continues to welcome enthusiastically the material conveniences, which the scientist and the engineer are bringing within the reach of people there is an undercurrent of uncertainty and suspicion in the present-day public opinion regarding the true social value of many of our technological contributions. Surely, there is something ironic in the picture presented by a man who is awakened by an electric alarm clock, shaves by choice with an electric razor and with electrically heated water, breakfasts off dishes prepared on electric appliances, is transported to his office in an automobile and by electric trains and elevators there to transact most of his business by telephone and with the aid of innumerable mechanical gadgets, but who, during his spare moments conjures up visions or dangers, inherent in an over-reliance upon technological aids and conveniences. But while we may smile at this, we cannot close our mind to the influence which the motor car has had, not so much upon safety as in the way of increased temptation to crime and moral laxity. Further, the introduction of cheap printing methods and the emergence of radio broadcasting and talking motion pictures from science, have displaced the lyceum platform and the more substantial literature upon which our forefathers depended for intellectual guidance. Evidence is not lacking that the ever-mounting flood of reading matter and predigested information may be diluting the intellectual fodder chosen by great numbers of people.

The following quotation is from an article by Gilbert Murray in which he raised pros and cons of technology:—

"In this machine age, man has had to pay a heavy price for the help given him by his machines. Take a well-fitted modern observatory ; a telescope with a very large lens, a clock-work arrangement, enabling it to follow exactly some particular part of the sky, a fine photographic apparatus to record the light of the stars, even stars quite invisible to the eye. A man looks at the photograph and discovers on it a new star. A great achievement, but due chiefly to the machine, not the man; such a man is not using nearly as much mind, as much thought and brain power, as an ancient Greek or Chaldena astronomer who with no instruments at all observed and calculated nearly right, if not quite right, the main movements of the heavenly bodies. Think of a stupid fat man driving fast in a beautiful motor-car which he does not understand ; or the millions of clerks who are carried blindly to their work every day by train or bus ; they are not using nearly as much intelligence as the man of a hundred years ago, walking on his own legs, looking about him, noticing plants and trees and birds. No doubt immense skill and brain power have gone to making the instrument—the telescope, the motor car, or steam engine ; but the instrument, when made, actually dis-educates the user. It enables him to do what he wants or get where he wants, almost without using his mind or brain or limbs at all. And if he need not use them, you may be sure, he won't use them."

The above is a point of view commonly expressed by critics of the machine. Frank B. Jewett, a Leader in research and past President of the American Institute of Electrical Engineers, however, is of the opinion that this very point could be turned against them.

Frank B. Jewett* has quoted at length Sir Josiah Stamp and Southey to prove that anxiety concerning moral decadence following technological advances is no new thing peculiar to our day and age. We all know that it has long been customary to sigh for the "good old times".

Speaking of Southey's opinion of the manufacturing system Macaulay said:

"There is nothing which he hates so bitterly. It is, according to him, a system more tyrannical than that of the feudal ages—a system of actual servitude, which destroys the bodies and degrades the minds of those who are engaged in it. He expresses a hope that the competition of other nations may drive us out of the field; that our foreign trade may decline; that we may thus enjoy a restoration of national sanity and strength."

In June, 1939, the American Institute of Public Opinion conducted a stock-taking survey among a representative section of the relief population. The Institute's first question was: Whom do you blame for the present unemployment in this country? Out of those with opinions, almost 1 in 5 said: "Machines taking the place of men" or "too much labour-saving machinery".

The economists, however, insist that to maintain prosperity and social progress within the private system, it is necessary continually to increase the efficiency of industrial production, that is, to produce more goods at lower cost.

Freazy Eakin and William Hard,† after carefully analysing the family budget, expressed the view that to

*In Electrical Engineering for August, 1938.
†Reader's Digest, May, 1940.

give an average American family a reasonable standard of living, national income per person in the States should increase from $660 to $800 per annum.

According to them it is dangerous nonsense to say "We have solved our production problems. All that remains is to distribute the wealth we have. We do not need all our workers. Those now with jobs can produce everything we need. There will be a lot left over. We are in for permanent unemployment.

"It is dangerous nonsense," they continue, "because it destroys our vision and weakens our will. Production is 'not' solved and unemployment is 'not' necessary. To produce what we need, we would have to employ all our workers; and then we would have to step up the efficiency of their machines, and the efficiency of their brains and hands by at least 25 per cent.

"We need some true economic leadership."

Discussing the question of the effect of machinery on unemployment, Leo Wolman* in an article in Electrical Engineering for October, 1939, said :

"The manufacturing industries of this country (U.S.A.) when things are going well, employ about 10 million people, which is about 25 per cent of the total gainfully occupied. . . . . . These ten million or so people were paid 25 cents an hour in 1914. They got 61 cents an hour in 1920. They got 59 cents an hour in 1929. At the bottom of the last depression, in 1933, they got 45 cents an hour ; and in December, 1937, they got 72 cents an hour. This is a very important set of figures. In December, 1937, manufacturing labour in the United States got, roughly, three times in money wage, what

*Leo Wolman is an economist of the National Bureau of Reclamation and Professor of Economics at Columbia University, New York.

it got in 1914. It got 11 cents an hour more than it got in 1920, which was the all-time peak of money wages in this country, and a peak that was reached after a very lively period of business from 1914 to 1920. And it got 13 cents more than in 1929, which was another peak in American business. It got 27 cents an hour more than it got at the low of the depression in 1933."

He further makes a very significant remark " When I say that industry has a capacity to absorb and when that capacity is exceeded it ceases to absorb and run smoothly, I mean that when friends of labour seek to put wages at a point where they cease to yield the greatest volume of employment and payroll, a great and perhaps lasting dis-service is being done to labour by the very people who call themselves, and probably honestly regard themselves, as the friends of labour."

The above situation arose after the labour unions gained strength. Previous to this, the situation was that private ownership of the means of production, that is, of the machines, permitted the employer to grind down wage-earners and to keep them in a state of insecurity and destitution.

There is another aspect of this question.

Until the coming of the machine, civilizations and countries existed by themselves and were sufficient to themselves. They lived and died alone. Geography and history were then subjects of little practical importance.

The inventions of the late 19th and early 20th century tended to bring people closer together. They centred on efforts for faster transportation and better communication. The development of motor traction, the automobile, and the aeroplane helped to annihilate space. Telegraph and telephone brought cities, states

and continents within the hearing of each other. Finally the last remnants of isolation were being removed by the radio.

Thus science encouraged the integration of man on the entire globe.

Political activity of the corresponding period, however, was bent on securing the benefit of the new inventions for specific nations, at first for special groups within nations and later on for a greater share in these benefits by the masses, whom industrial expansion had separated from their tools. Internationally, politics supported the struggle for material supremacy by tightening some countries' grip on colonies, on raw materials, on means of scientific and industrial exploitation, and on markets for the new and ampler products of science and labour at home.

Science then was tending to bring men together, politics to tear them apart. It is possible to view this era as a race between the two. If science unhindered by economic strife could have perfected its devices, could have adapted the new tools to the works of peace, we might conceivably not have had the war. But political thought was not alive to the new implications of science.

Science was subjected to the purposes of war and made it more destructive than ever before. Aviation and radio, the latest gifts of inventive genius, were harnessed to the war machine ; both played a very grim part in the struggle ; both were perfected under the stress of military demand ; both received a new and sinister direction through war. Science helped to decide the war, but war solved no problem ; it created new ones for science to solve.*

*Cesar Saerchinger in "Voice of Europe".

Nations which failed to take cognizance of the inventions of science and the machine were left behind in the economic and political race of the nations of the world. Others taking advantage of these scientific inventions invincibly strengthened their position. Histories of India and Japan may be quoted as striking instances to prove the two points.

The Indian Industrial Commission, in the opening remarks of their report, made a very important observation "At a time when the west of Europe, the birthplace of the modern industrial system was inhabited by uncultured tribes, India was famous for the wealth of her rulers and for the high artistic skill of her craftsmen. . . . . . Even at a much later period when traders from the west made their first appearance in India, the industrial development of this country was at any rate not inferior to that of the more advanced European nations."

The Pharaohs of Egypt used to wrap their mummies in Indian muslin and fashion their jewel boxes from the ivory and gold and sandal-wood of India. The muslins of Dacca were known to the Greeks under the name of Gangetika.* With regard to the iron industry we are told that in the past it "not only supplied all local wants but it also enabled India to export its finished products to foreign countries. The quality of the material turned out had a world-wide fame. The famous iron pillar near Delhi, which is at least 1,500 years old, indicates an amount of skill in the manufacture of wrought iron, which has been the marvel of all who have endeavoured to account for it. Mr. Ball (Deputy Superintendent of the Geological Survey), admits that it is not many years since the production of

*Imperial Gazetteer, Vol. III, page 195.

such a pillar would have been an impossibility in the largest factories in the world, and even now there are comparatively few factories where such a mass of metal could be turned out."[1] India was famous, likewise for her silk manufacture, her woollen shawls, her boxes of sandal-wood inlaid with steel and ivory, her cabinet work and her cutlery. Her internal resources were not only sufficient to supply her inhabitants with almost every article of necessity and comfort, but attracted the attention of foreigners.[2]

Mr. W. H. Moreland in his book "India at the Death of Akbar" has shown the existence of a considerable and flourishing silk industry that consumed 3,000,000 pounds of raw material ; that cotton goods as well as silk goods were exported in substantial quantities to Persia, Turkey, Syria, Barbary, and Arabia. It was the fine linens and prints, the jewels and embroideries of India, that enabled the East India Company in the eighteenth century to pay its bondholders average profits of 117 per cent for the first few decades of its existence and to sell stock issued at £100 at as much as £500. Through the agency of the Dutch and English East India Companies "Indian goods became familiar in Amsterdam, London, Paris, and other markets ; the tastes of consumers were made known in the areas of production ; and the East was searched systematically for commodities which might command a profit in the West"[3].

The rapid change from an India with a well-balanced economic equilibrium, with a population fairly well distributed between agriculture and industries, to an India with a predominantly agricultural population

---

[1] G. Ranade, Essays on Indian Economics.
[2] "The Wealth of India" by Wadia and Joshi.
[3] W. H. Moreland, from Akbar to Aurangzeb, page 104.

was brought about by her failure to avail of the mechanical inventions in Europe.

The end of the eighteenth and the beginning of the nineteenth century saw vast and revolutionary changes in the method of production. The invention of drop box and flying shuttle and the power loom prepared the way for extensive manufacture of fabrics. In fact it laid the foundations of England's supremacy in cottons and woollens. The effect of superior machinery and scientific inventions had their repercussions on other arts and handicrafts as well.

Now take the case of Japan. At the time when Commodore Perry's "black ships" put into the Bay of Tokyo in 1853, the Japanese law prescribed death as the penalty for any Japanese, who should construct a vessel large enough to undertake a long sea voyage.

"To-day Japan is the third largest shipping power in the world. It has learned the industrial and commercial lessons of the West too well for the comfort of its teacher."*

The Japanese trade figures for 1889 are an amusing curiosity. The total value of the industrial commerce of the empire in that year was 136,000,000 *yen* . This figure had increased, almost exactly fiftyfold, to 5,725,875,000 *yen* in 1936. The largest items of imported goods in 1889 consisted of textiles, white silk, tea and rice; the typical products of a predominantly agricultural oriental land were the most valuable exports.

Now Japan has become the world's leading exporter of textile goods ; rayon, canned foods, and a host of miscellaneous industrial products swell the list of exports, while almost two thirds of the imports consist of such raw materials as cotton, rubber and wool, a large

---

*"Japan over Asia" by William Henry Chamberlain.

part of which are shipped abroad again after being turned into finished products in her factories.

There can be little doubt that Japan has mastered the technique of the machine age far more quickly than any other Eastern country.

There was a time soon after the opening up of the country to foreign intercourse, when Japan imported industrial talent in the shape of foreign engineers. There was a later period, when it imported most of its machinery. Now the Japanese not only are able to operate their own factories, but are able in most cases to manufacture their own machinery.

When Europe and America broke down the isolation of Japan, she soon realized that "if the Japanese nation desired to remain sovereign, it had to proceed along the road which was forced upon it, however, dull and incalculable it might be . . . . . The only possible escape was to build up a machine of modern production and destruction. The crucial step was taken with the decision to master the occidental methods of warfare, Japan took over the entire system of Western Armament, and attained to proficiency and even to a mastery of sorts in using it. . . . . . It was merely assumed as axiomatic by every Japanese that the foreign armament had to be taken over.

"To build up an army in Japan, to keep it efficient, to adapt it to the peculiar conditions of the land, required a corresponding education and training. . . . . . Battle-ships, heavy artillery and later flying equipment had to be imported, as rifles had been at an earlier stage. A comprehensive organization had to be developed, which would provide all types of schools for the most thorough going technical training in the natural sciences, and make it possible for industrial factories to produce the

implements of war. In short since a modern military state is possible only on condition that it is an industrialized state, Japan had to develop in that direction."*

It is true that science and engineering have increased the complexity of social organization in the West beyond man's understanding. But it is hoping against hope that the creations of science and engineering can ever be buried and forgotten. Notwithstanding the spirit of contentment and the background of religion maintained during long centuries, does an average Indian not long to possess the same conveniences and comforts that the machine has brought within the reach of every American?

It is too late to argue for handicraft policies in a world of mass production. To-day in 1939, nobody produces any saleable article by his own labour, it takes many thousands of workers to provide an average meal. No country can afford to discard the machine. Even if it is an evil, it has become an essential evil.

Let the fullest advantage be taken of the machine to pull the people up from the starvation level to the subsistence level, from the subsistence level to the comfort level and if possible even above the comfort level. This is what has been done in America. In the words of H. G. Wells "Why do we insist in holding on to old and worn out things, when there is surplus labour everywhere? We should change older things for newer and better and more comfortable ones. This would be society's answer to the relentless fecundity of the machine."

What is required to meet the problems created by

*"Japan in Transition" by Emil Lederer.

the big machine is 'sane' economics and 'sane' internationalism. There are at present countless instances of waste through lack of co-ordination and by straining against the facts of geography.

"Our present day difficulty, as I see it, is not that we scientists and engineers have produced too many things too fast and that there should be a holiday in applied science, but rather that we in common with the world at large have failed to take, seriously enough, the matter of foreseeing and providing for the important social consequences of our material achievements."*

If the scientist's and engineer's work creates wealth and physical comforts for society, but endangers social stability, then he ought to be more fully aware of what he is doing, its consequences and its dangers. His creative effort has been aimed at the development of higher speeds of travel and production, greater concentration of physical power, more efficient and extensive communication ; it should now be aimed also at a more orderly adaptation of these developments to the social organization.

Indeed the engineer's professional place in society has rapidly become a very important one. He has been literally flung into industrial management and other responsibilities where social and economic elements are dominant. On that side of management involving the cold facts of machinery, materials, dollars and cents, it will be readily agreed that he has been supremely successful ; but not so on the human and social side. Yet his part on this side, both professionally and as an educated citizen, must become larger with time.

---

*Frank B. Jewett in his article "The Engineer and the Trend of Economic Thought".

There is a feeling growing amongst the scientists and the engineers in America that they will be able to make the greatest contribution to the orderly solution of economic, social and political problems. They, more than any others, know the power, possibilities, and, above all, limitations of science and of the scientific method of attack. This is not because they have any superior wisdom, but merely because they have been specially trained in the knowledge and technique of science and engineering. They know that the great achievements of science and engineering are never the results of brilliant chance unrelated to previous established knowledge. Irrespective of how radically new they may appear to the uninitiated, they are always direct lineal descendants of what has already been proved. They are not really very great adventures beyond it. To venture further would amount to become a gambler rather than a scientist or an engineer.

"Having to operate in a field where Nature's inexorable laws are swift to punish transgressions and cannot be hoodwinked even temporarily, as is sometimes possible in the social and political sector, we are acutely conscious of the dangers inherent in large-scale excursions into untested regions, particularly when many unknown and so uncontrollable variables are sure to exist. We have learned through sad experience the value of the succession of small-scale laboratory trials as a necessary prelude to successful large scale use. It is only through them and the opportunity they afford of unearthing and correcting individual small difficulties and mistaken assumptions, which saves us from having them pile up in great failures. It is an axiom in science and engineering that what can be done in a laboratory may be done on a large scale ; what cannot be done there cannot be done on a large scale."*

*Frank B. Jewett in Electrical Engineering, August, 1938.

Out of all this experience should come, in the years ahead, an enlarged opportunity to apply it in the social, economic and political fields, if in no other way than by influencing sincere men and women to avoid undertakings which in the very nature of things are doomed to failure because of the unknown or uncontrollable factors inherent in them.

With this view it is argued that an engineering education will fail in its purpose if it gives mere formulaic information ; it must build a man who can accept the responsibilities of a modern world thrust upon him.

Emphasizing on the necessity of the right kind of education for engineers, Arthur Morgan, Chairman of the Board and Chief Engineer of the Tennessee Valley Authority, once remarked that the young college-educated engineers who entered his employ puzzled him. Most of them were competent as engineers. The majority had undeviating technical integrity. But not a few were culturally, socially and politically ignorant or immature. Many were unable to discuss anything but shop, sports and women. Many knew too little about taking care even of their health. Their education was one-sided. A depressing number had too little civic pride or interest or philosophy of life, too little sense of proportion and social or human duty. Except in their profession, their social responsibility was inadequately developed.

If the engineer is to take a hand in social affairs, he should have an opportunity while in college, to learn something about it. Robert E. Doberty as Dean of Engineering at Yale urged his students to take course in " Human Relations in Industry ".

" The world to-day challenges the engineer. It is not satisfied that he brings his brain children into being.

It demands that he guide and control them. The works of the engineer are all about us, but the control of these works, for the most part, is in the hands of other men."*

The future of the machine would depend on the extent to which the engineer, as an essential link between the pure scientist and the world, is prepared to take up this challenge.

---

*Joseph Well in an article "A Modern Aspect of Engineering Education," March, 1940. Electrical Engineering.

XXII

RETURN

We returned to Denver on August 27 after a very extensive visit to the dams built by the Bureau of Reclamation. It had been planned to stay at Denver for the whole of September and even part of October to complete our notes and discussions with the engineers of the Bureau. We had booked passages in the "Empress of Asia" sailing from Van Couver on October 14. We started work on the tentative designs of the two dams which the Punjab Government had in view.

On September 1, the evening papers broke the news in big black and bold headlines "HITLER WAGES UNDECLARED WAR ON POLES". These letters were so big that they filled the upper half of the front page. Editorial comments were short, sharp and snappy. On Sunday, September 3, came the newsboys, shouting that the British and French Governments had declared war on the Third Reich. It was considered that Italy and Japan might join any day.

In the meantime the Punjab Government issued urgent orders recalling us immediately. It was on September 5 that we decided to get the next boat from Van Couver. This boat was to sail on September 16. Our American friends advised us to travel by U. S. Air Clippers, but it was too late to think of a change. There was no time to obtain either permission or funds to travel by air. We made the best possible use of this reduced stay at Denver. The engineers of the Bureau were most sympathetic and helpful and did not hesitate to

give their whole time to discussions with us, whenever we requested them to do so. These were long and anxious days.

When we reached the docks on the morning of September 16, we found that the ship was all painted grey. Even the window glasses in cabins had been painted grey on the outside and black on the inside. Double doors had been provided on the deck. There were thick black curtains all round. A very strict watch was kept that none but passengers were allowed to get on to the boat.

Anxious faces—relatives of crew and passengers waited on the shore to bid them "Farewell"—praying within their hearts that it may not be their last goodbye. There was grimness in everybody's face on the boat. The usual hustle and bustle on the eve of departure of a boat was conspicuous by its absence.

The boat was due to sail on the 16th at 11-0 a.m. Instead of sailing, there was a notice on the Purser's board that the ship would not leave till midnight. When we woke up on the morning of 17th, we found her still in the docks. Even the captain of the boat said that he did not know when the boat would move. He was to receive the orders from the Admirality.

This was evidence enough of the impending danger. We were on the horns of a dilemma. We felt we had made a mistake in not trying the air. It was, however, no use to despair over the past. What was to be done ? Neither of us worried about our own lives. Hundreds of thousands die in war, why worry about a couple of souls? What did worry us were our dependents. The least that seemed to be called for was to write a detailed letter and post it by air. I dare not write such things to my wife. That would be worse than the actual hap-

pening. It would have made every minute after the receipt of that letter simply unbearable for her. Instead I wrote to my son-in-law. After the posting of that letter by air, I felt a great relief.

The boat did move at 10 a.m., but after going a mile or so stopped again. Then we had the most rigid boat drill. It was very different from the usual formality we had on previous occasions.

We sorted out our papers. The most important ones, particularly regarding the tentative designs of our own dams, were kept in the brief-case. We took out our warmest pull-overs and kept them handy. At 3-30 p.m. the boat moved again on its zig-zag path. We went far north of the regular course.

There were strict orders to take our life-belts with us wherever we went. We carried them to the dining room, we carried them to the sitting room and even to the deck during the morning and evening strolls. This was not without some humour. An American doctor returning to the Philippines remarked that the first thing he would have to do on embarking at Manilla would be to get a dummy life-belt made, otherwise he would have no appetite for breakfast.

Every night it was a complete blackout. No one could light a match or show any other light on deck. Only sketchy news appeared on the news bulletins. We knew nothing definitely of what was transpiring in the world. Fog and wind and uncertainty chilled all social activity on board. Everyone retired early. It was perhaps the good food of the " Empress of Russia ", the meatless selection, that kept passengers fit on this voyage.

Our boat reached Yokohama on the morning of September 29. We were hungering for news with a

queer dread for the bad news we knew would greet us on landing, the details of the war that had been kept from us during our days and nights of uncertainty at sea.

The Japanese press was full of news and comments on her Chinese affairs. This was reflected even in social functions. The following is a typical extract from one of the dailies that came to my hand on getting ashore:—

"Setting an example of drastic economy amidst the Emergency, a young company director will marry the daughter of a company president with the costs of the wedding reception limited to 7·50 *yen.** They agreed to use China Emergency bonds as betrothal gifts, not to purchase any new clothing or household effects, to limit the number of persons to be invited to 15, and to serve a 50 *sen* meal to each of the guests. They also agreed to donate the money thus saved to a patriotic association."

Kobe was the next port we touched. As we reached the port, the sun rose—thin streamer of pink light across the east. The stones were jet black against the sky. The grey clouds that had so recently moved across the stars now caught fire and became gold arrows in the heaven. The light grew second by second ; the pink turned to dull red, then to mauve; a veritable furnace of light blazed up above it, and in the midst of this the sun came up in the distance.

Japan struck me as a country modelled very much after the fashion of the United States. The streets and railway trains were strikingly clean. The entrance to the port of Nagasaki was very picturesque.

After staying at Shanghai for a whole day, we

---

*One *yen* is equivalent to 12 annas approximately.

reached Hong Kong at 10 p.m. on Friday, October 6. Here we had to change our boat. Hong Kong is a lovely harbour and its view at night is exquisite. The city, however, was dirty with an offensive stink in bazars.

It was at Hong Kong that both Khosla and myself lost our fountain pens. When we came on board the "Talma", we were amused to learn that we were not the only fellows, who had suffered at the hands of Hong Kong crooks; six others had lost their Parkers in exactly the same manner.

Most of the time on board the "Empress of Russia" and the "Talma" was spent in reading library books. The atmosphere was too dull for anything more serious.

The "Talma" touched Singapore, Port Swettenham, Penang and Rangoon on its way to Calcutta. Passengers were debarred from intimating to their relatives the dates of departure or probable arrival of the boat at its destination. There were off and on odd rumours on the boat of some secret German destroyer with two planes and big guns, being in the Indian Sea. We had, however, become quite immune to such rumours. Our boat touched Calcutta at 2.30 p.m. on October 26. We left for Lahore the next day.

As the Calcutta Mail approached Lahore on the Sunday morning, the vision of relatives and friends waiting on the platform arose in front of my eyes.

Never had the poet's words appeared so significant :

"Mid pleasures and palaces though
we may roam,
Be it ever so humble there's no place
like home !
A charm from the skies seems to hallow us there,
Which, seek through the world, is ne'er met
with elsewhere.
Home ! Home ! Sweet, sweet home !
There's no place like home".

END.